Legacy of a Lost Chinese Dynasty

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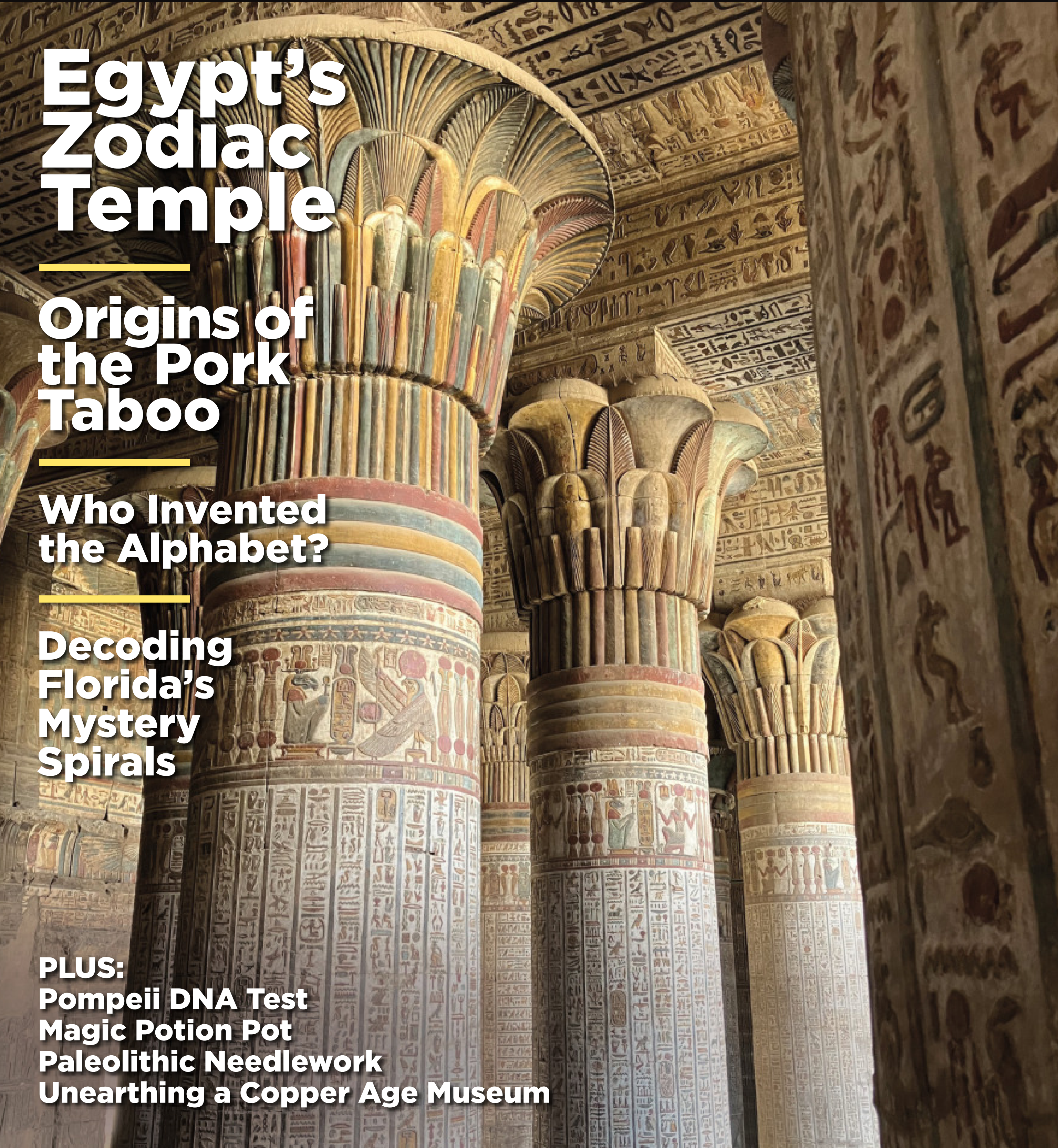
March/April 2025



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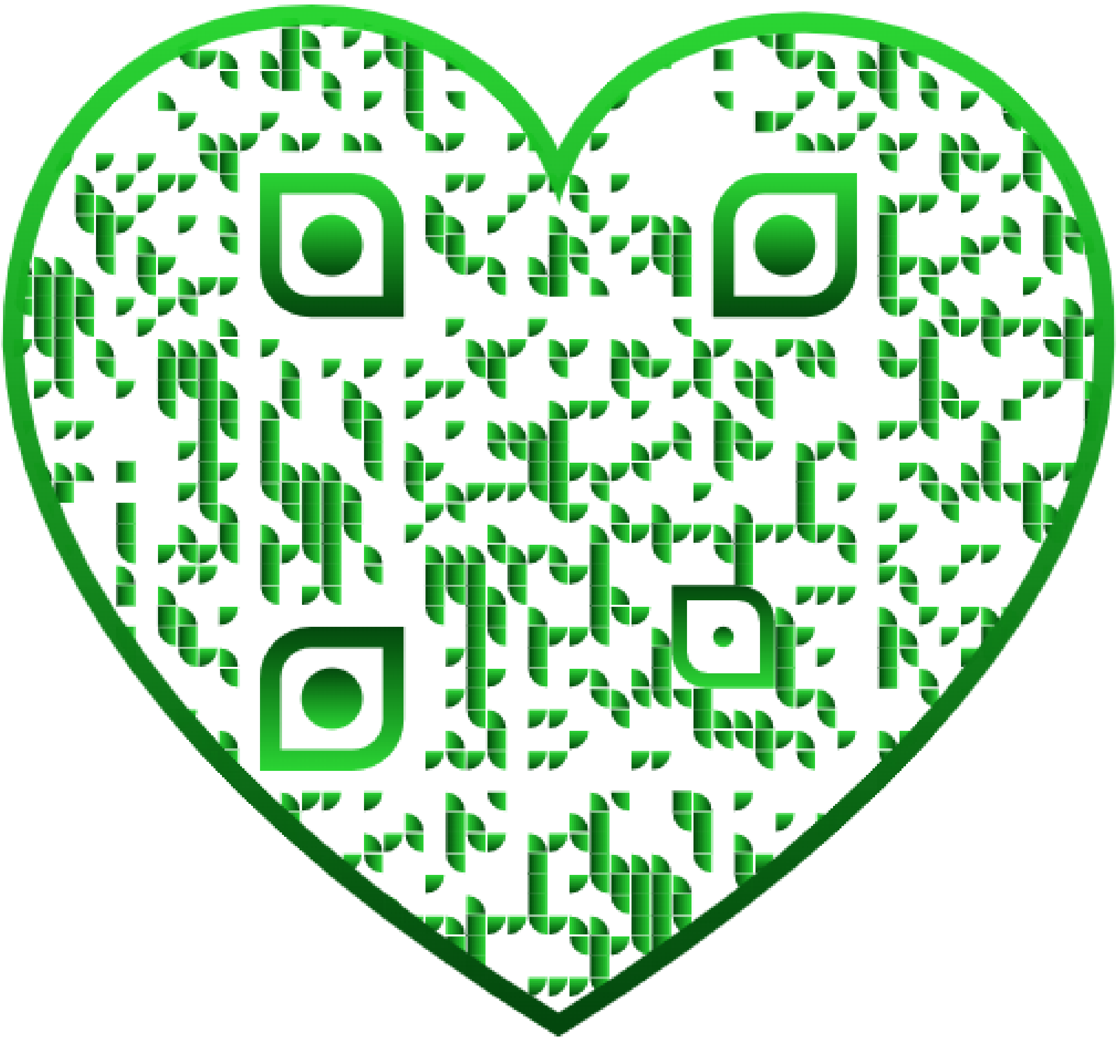

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Cover: Painted reliefs in the entrance hall of the temple of Khnum, Esna, Egypt
PHOTO: Ahmed Amin/© Egyptian Ministry of Tourism and Antiquities

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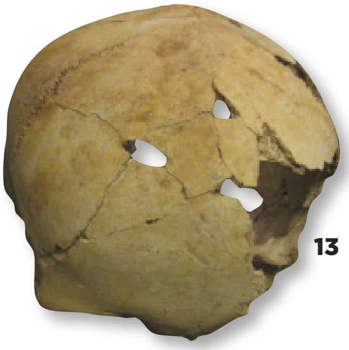

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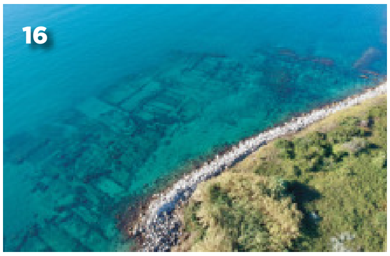

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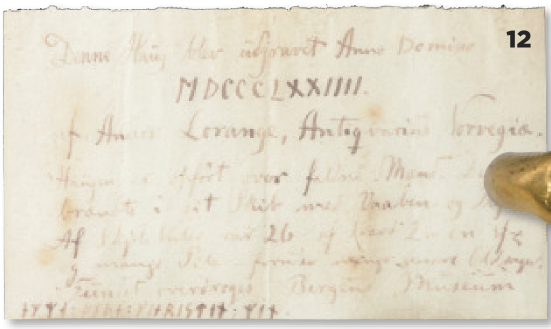

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BY ANDREW LAWLER

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EDITOR'S LETTER

FIRST IN THE FIELD

Exciting stories in archaeology often emerge from the discovery of evidence of an important innovation—either the earliest example known or the first to be found. The first pyramid, a 200-foot-tall, six-tiered edifice, was built from limestone and clay around 2630 B.C. for the pharaoh Djoser at the site of Saqqara near modern Cairo. The earliest pots, made by hunter-gatherers in China some 20,000 years ago, may have been used to cook fish. And the first coin was minted by a Lydian king in western Anatolia in the seventh century B.C. and bore the head of a lion.

In this issue, you will read about a host of exciting archaeological firsts covering a vast sweep of time, geography, and cultures. There are stories of what may be the earliest alphabetic writing, the oldest known firearm in the continental United States, and the first evidence of Christianity's arrival in an unexpected location. You will also read about the first complete recipe for the mysterious concoction inside an ancient Egyptian cup—the results surprised even the archaeologists who discovered its array of mind-altering ingredients. And, speaking of food and drink, archaeologists may have discovered the first example of a baked appetizer you probably enjoy dipped in olive oil before digging into your bowl of spaghetti and meatballs.

This issue brings you the tale of the people who made the first fired bricks, which they used to build tombs in which they buried the earliest known examples of what would later become common grave goods. Archaeologists have also discovered the first evidence of any monumental structure built by the Qara Khitai, a nomadic people who ruled over a large swath of Central Asia in the twelfth century. In northern Florida, for the first time, researchers have been able to radiocarbon date examples of a rare type of pottery with perplexing designs made by Indigenous peoples thousands of years ago.

When pigs evolved from fearsome wild boars to beloved barnyard animals is uncertain, but archaeologists have identified the first site in the ancient Near East where there is clear evidence for pig domestication. And, any time there are firsts, there are also lasts. Read on to find out about the demise of the last Byzantine emperor.

Jarrett A. Lobell
Editor in Chief

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TEARS FROM A VOLCANO

Uniquely American stone ignites romance

On May 18, 1980, the once-slumbering Mount St. Helens erupted in the Pacific Northwest. It was the most impressive display of nature's power in North America's recorded history. But even more impressive is what emerged from the chaos... a spectacular new creation born of ancient minerals named Helenite. Its lush, vivid color and amazing story instantly captured the attention of jewelry connoisseurs worldwide. You can now have four carats of the world's newest stone for an absolutely unbelievable price.

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FROM THE PRESIDENT

THE SPIRIT OF COLLABORATION

In January 2025, the Archaeological Institute of America held our 126th Annual Meeting in Philadelphia. The meeting's theme, Archaeology and the Environment, encouraged participants to explore human responses to climate shifts and ecological disasters in antiquity, current threats to the archaeological record, and the discipline's ever-changing landscape. Toward this end, they shared the results of international collaborations among scientists, museum and heritage professionals, and local communities, as well as novel methods of public outreach and engagement.

Students with a repatriated vessel

At the meeting, we celebrated the efforts of archaeologists who work to engage a diverse array of local stakeholders and scholarly communities with several of our annual awards. The AIA's Outstanding Public Service Award was presented jointly to the FBI Art Crime Team, anthropologist Holly Cusack-McVeigh of Indiana University, and her students. This group has worked tirelessly to repatriate human remains and cultural property, much of it improperly or illegally acquired, that were seized in 2014 by the FBI from among more than 40,000 objects in collector Don Miller's Indiana home. By bringing together Native American and other descendant communities with scholars, federal agencies, foreign governments, and cultural institutions, the group has succeeded in repatriating human remains and artifacts within the United States and to 10 other countries.

Many of the other awards we were proud to present illustrate this commitment to collaboration. Archaeologist Abidemi Babalola of the British Museum received the Conservation and Heritage Management Award for his work as director of the Archaeology of Glass Project at the Yoruba city of Ile-Ife in southwest Nigeria. The project documented Indigenous glassmaking technology and preserved the site of Igbo Olokun as a space for community engagement with the past. Michael Galaty of the University of Michigan and Lorenc Bejko of the University of Tirana accepted the Anna Marguerite McCann Award for Fieldwork Reports for their research in the Shkodër region of northern Albania. Through extensive survey, targeted excavation, landscape data, and outreach to local farming communities, Galaty and Bejko explored the early origins of social inequality in the region.

The AIA's Gold Medal Award for Distinguished Archaeological Achievement was presented to archaeologist Andrea Berlin of Boston University, founder of the Levantine Ceramics Project, an open-access, crowd-sourced website devoted to eastern Mediterranean ceramics spanning nearly 10,000 years. "Together, we are building a resource to open up the past to everyone," Berlin says. The AIA celebrates all our award recipients and their many approaches to an engaged and collaborative field of archaeology. To read more about these outstanding scholars, go to archaeological.org

Elizabeth Greene

Elizabeth S. Greene

President, Archaeological Institute of America

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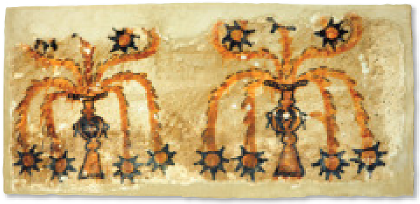

PICKING THE RIGHT FLOWER

The flowers depicted in the Maya murals found in Chajul, Guatemala ("Dancing Days of the Maya," January/February 2025), greatly resemble my Christmas cactus plant. The flowers are always at the end of the leafy stems.

Donna Krepin
Slippery Rock, PA

INDUSTRIAL CHALLENGES

As a retired manufacturing engineer from the metal casting industry, I was most interested in Artifact in your January/February 2025 issue. I have often marveled at the huge metal castings made in antiquity and it is reassuring to learn that they had the same problems we face today. What is not so reassuring is that we, as an industry with 4,000-year-old roots, still refuse to adopt science-based engineering and design methods. Even today, when we have computer simulations that can predict the quality of casting to be made with a particular mold design, the modifications to that design to correct the flaws are purely experience- and intuition-based. So, we still experience the same problems. Industrial culture is hard to change.

Ed Herman
Shelby Township, MI

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DUCK TALES

Opening your November/December 2024 issue to page 35 ("Europe's Lost Bronze Age Civilization"), I yelped with delight—a trike just like mine! Even the wheel configuration is the same. Admittedly, however, mine lacks mallard power (sigh).

Mary Wackerle
Midland, MI

A POWERFUL MESSAGE

I wanted you to know how much "Letter From Poland: Remembering an Unspeakable Crime" (November/December 2024) meant to me. I am no scholar nor archaeologist, just an average person who was deeply touched by this article. I wish everyone would read this article; perhaps it would open eyes to the atrocities that people commit. The excavation was fully described and in understandable terms. I also believe every reader knew this excavation was different from the beginning. I have read many of your articles and I feel this was the best written article to date.

There is the very old but true statement: Those who do not know their history are bound to repeat it. Please continue educating us fully so perhaps we can learn.

Laurie DeFazio
Sandy, OR

Correction: "Colonial Companions" (January/February 2025) states that Jamestown, Virginia, was the first permanent colony in America. Jamestown was the first English colony in America; St. Augustine, Florida, is the acknowledged first permanent colony in America.

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DIGS & DISCOVERIES

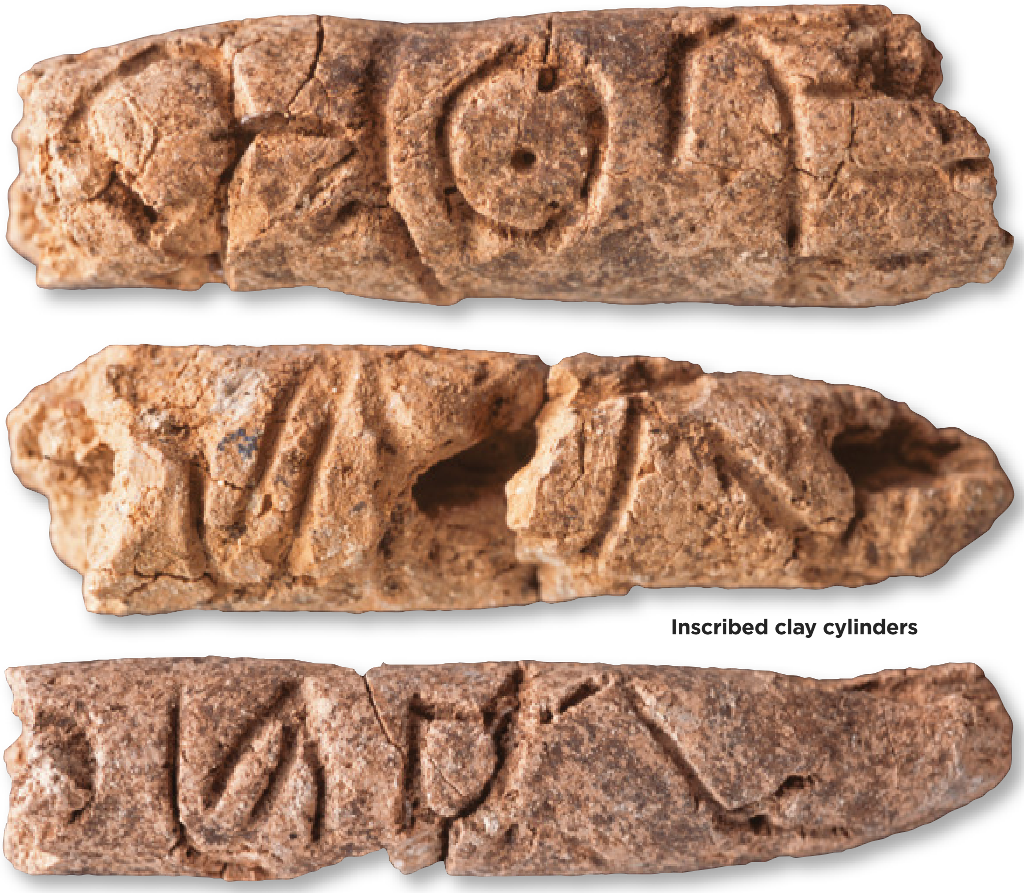
IRAQ'S HIDDEN FORTRESS, VIKING LOVE LETTER, UNDERWATER NEAPOLITAN SHRINE...AND MUCH MORE

PRIMORDIAL ALPHABET SOUP

Before the invention of alphabets, literacy was the purview of Egyptian and Mesopotamian scribes trained in complex writing systems that could take years to master. Proto-Sinaitic script, which uses a set of alphabetic signs adapted from Egyptian hieroglyphics, is the earliest known system to rely on symbols alone to represent sounds and that could be mastered by someone who had never set foot in a scribal school. This early script is known principally from around 30 inscriptions written on monuments near a turquoise mine on the Sinai Peninsula dating to between approximately 1850 and 1700 B.C. Philologists, specialists in ancient writing, have been able to translate many of the inscriptions, some of which invoke the principal gods of the Canaanites, a Semitic-speaking people who lived in the Levant and had close contacts with the Egyptians. Either Egyptian-trained scribes or Canaanite turquoise miners were thought to have invented the script, which endures in ghostly form in many of the alphabets used by billions of people today.

So went the conventional wisdom two decades ago, when a team led by archaeologist Glenn Schwartz of Johns Hopkins University made a curious discovery in the Early Bronze Age (ca. 3100–2000 B.C.) levels at the site of Umm el-Marra in western Syria. In the third millennium B.C., the city there was most likely known as Dub and was the capital of a small Semitic-speaking kingdom. Dub's wealthy residents were buried in well-built, amply furnished tombs in a necropolis that was unusual for its large size and prominence at the center of the city. Egyptologist Elaine Sullivan, now of the University of California, Santa Cruz, was excavating one such tomb dating to 2350 B.C. when she discovered four small clay cylinders embedded in the floor, each about the size of a finger. Inscribed on the cylinders were eight distinct symbols, of which five appeared on multiple cylinders. "That regularity suggested they likely represent writing of some sort," says Schwartz.

The symbols did not resemble Mesopotamian cuneiform or Egyptian hieroglyphs, the main writing systems used in the Near East during the Early Bronze Age. Schwartz did, however, note that several of the symbols bore some resemblance to Proto-Sinaitic script, which was thought to have been invented some 500 years after the cylinders were left in the tomb. He wondered if perhaps the cylinders were tags used to identify goods. Hoping to draw the attention of specialists in early writing, in 2006 Schwartz published an article in which he noted that the inscriptions on the cylinders could be writing. "I'm an archaeologist, not a philologist," he says. Schwartz did not hazard his interpretation that the



Inscribed clay cylinders

Early Bronze Age tomb, Umm el-Marra, Syria

inscriptions might be the earliest examples of Proto-Sinaitic script. "I thought the philologists would take it from there," he says, "but no one took the bait."

In the absence of other scholars offering their interpretations, Schwartz published another paper four years later, this time putting forth the idea that the cylinders were inscribed with a script resembling Proto-Sinaitic. "Again, there was no response from philologists," he says. Eventually, however, over the course of the next decade, Schwartz began to hear from scholars receptive to his ideas. In fall 2024, a full 20 years after the cylinders were discovered, Schwartz delivered a conference paper proposing that the cylinders could have been inscribed by Early Bronze Age Semitic-speaking peoples who traded with Egyptians and were inspired to develop their own writing system. Many of Schwartz's colleagues—both archaeologists and philologists—are now open to the suggestion that the origins of Proto-Sinaitic script are far earlier than they had previously believed. Philologist Ted Lewis of Johns Hopkins University has even proposed a possible reading of one of the inscriptions as "Sil'anu," a personal name that derives from the ancient Semitic root for rock. "I'm looking forward to other translations," says Schwartz.

—Eric A. Powell

IBERIAN GENDER IMBALANCE

Southern Iberia is home to some of the highest concentrations of megalithic tombs anywhere in Europe. A recent multidisciplinary study has demonstrated that the necropolis of Panoría, near Granada, was especially unusual, as it contained the burials of nearly twice as many women as men. Since the discovery of the necropolis, 19 megalithic burials called dolmens formed from large stone slabs have been identified, nine of which have been excavated. These contained more than 57,000 bone fragments from the skeletons of people who were entombed within the chambers between 5,600 and 4,100 years ago.

To learn more about the dead, researchers examined the peoples' remains using a combination of methods. These included a new technique called amelogenin peptide analysis that involves studying proteins in tooth enamel that can indicate an individual's sex. The technique is particularly useful in determining the sex of poorly preserved skeletal remains, or of younger individuals whose bones have not fully formed. In addition to showing that there were twice as many females as males buried at Panoría overall, the team's results indicated that, among children and young adults, the ratio of females to males was nearly 10 to one.

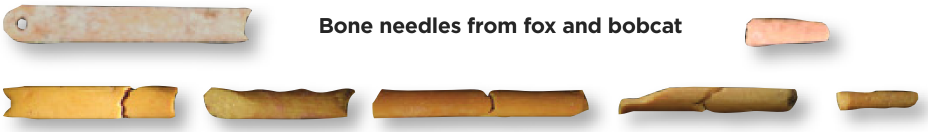
This pattern suggests that the social structure of the ancient community around Panoría was based on matrilineal descent. The existence of this social system would help explain why the young adults buried in the necropolis were so overwhelmingly female, as young men likely left the group to marry into other communities at a young age, a process known as male exogamy.

—Jason Urbanus

Dolmen, Panoría, Spain

UPDATE

ICE AGE NEEDLEWORK



Bone needles from fox and bobcat

Fox, Wyoming

Bobcat, Wyoming

What kind of clothing helped hunter-gatherers in North America stay warm during the Ice Age? New research at the La Prele mammoth kill site in eastern Wyoming is offering clues about the furry fashion choices people made to weather the glacial winds of the High Plains 13,000 years ago. While excavating the mammoth, which is located alongside a small encampment, Wyoming State Archaeologist Spencer Pelton and a team from the University of Wyoming uncovered 32 small bone needles that people likely used to sew clothing suitable for cold weather. (See "High Plains Mammoth Hunters," January/February 2023.) Employing mass spectrometry to analyze proteins in the bone, the team identified for the first time some of the animals that Paleoindians used to craft their needles. These included hares, foxes, bobcats, and, possibly, extinct American cheetahs or lions. "The needles are among the clearest examples we have for how early Paleoindians produced cold-weather garments," says Pelton. "Surviving the final years of the last Ice Age required garments with fur fringes and tightly spaced seams. Here we have evidence of animal furs and sewing in a single type of artifact."

—Matt Stirn

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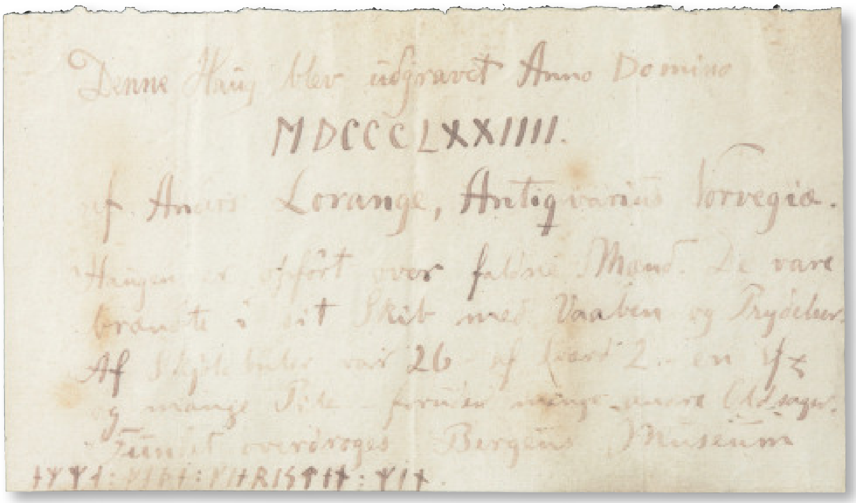

Denne Haug blev udgravet Anno Domino
MDCCCLXXIIII.
af Anders Lorange, Antiqvarius Norvegia.
Haugen er opført over faldne Mænd. De vare
brændte i sit Skib med Vaaben og Prydelser.
Af Skjoldbuler var 26 af [illegible] 2 - en 1/2
og mange Pile - fremdeles mange andre Oldsager.
Fundet overdrages Bergens Museum
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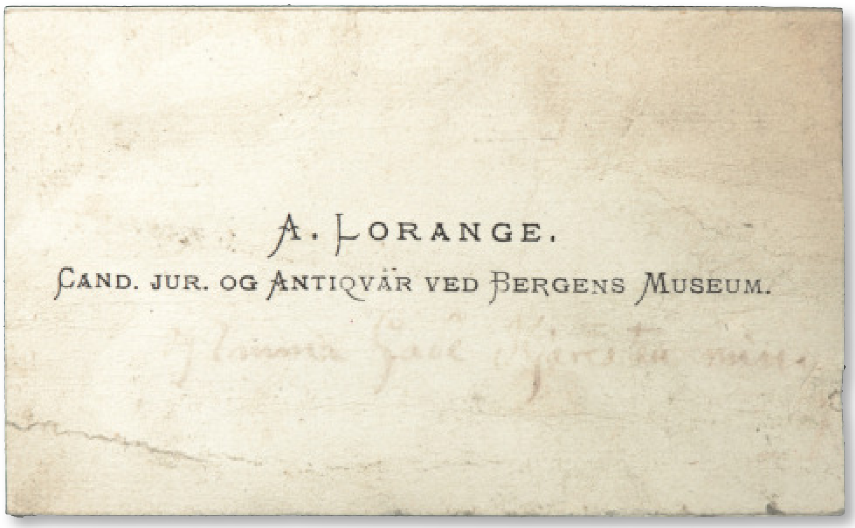
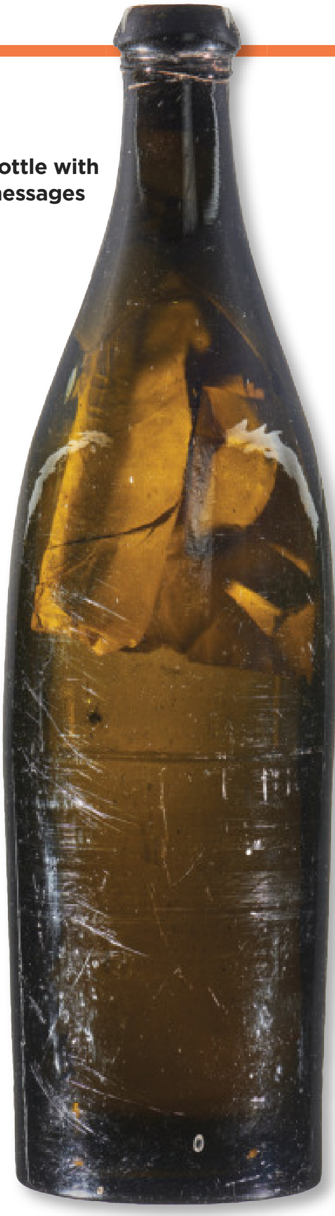
Lorange letter



A. LORANGE.
CAND. JUR. OG ANTIQVÄR VED BERGENS MUSEUM.
[illegible]

Lorange business card

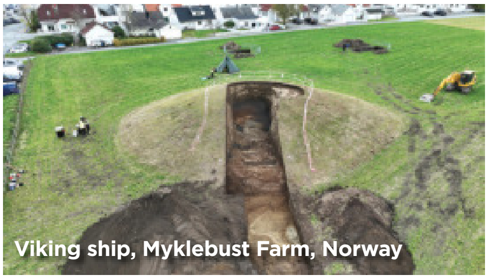


Bottle with messages

HIDDEN MESSAGES

While reexcavating a Viking burial mound in southwestern Norway, archaeologists from the University of Bergen came across a surprise: a message left more than a century ago by Anders Lorange, one of the country's first professional archaeologists. In 1874, on a farm called Myklebust, 170 miles north of Bergen, Lorange uncovered the burned remains of a Viking ship containing metal shield bosses and a massive cauldron.

Lorange didn't do much to document the dig, and researchers recently returned to see whether he had left anything unexcavated. To their surprise, the team found a 150-year-old message in a bottle buried in the center of the mound. It included a letter addressed to future archaeologists and Lorange's business card. Above the bottle were more than 600 nails Lorange had recovered from the ship, which had apparently been too heavy to take back to Bergen. "It was like he left a gift for us," says University of Bergen archaeologist Morten Ramstad.



Viking ship, Myklebust Farm, Norway

Archaeologists also found the name of Lorange's sweetheart, Emma Gade, spelled out in Viking runes at the end of the letter in the bottle. Based on the date when Lorange moved to Bergen and took up his position at the museum there, the young couple couldn't have been dating for long—a few months at most. Anders and Emma were married shortly after he finished his work at the farm. "If it was a sort of spell," says Ramstad, "it worked."

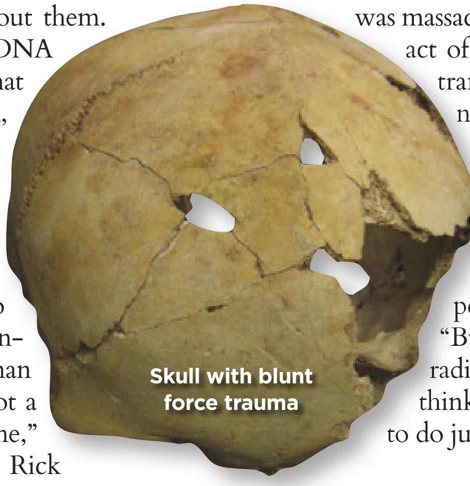
— Andrew Curry

ANCIENT BRITISH MASSACRE

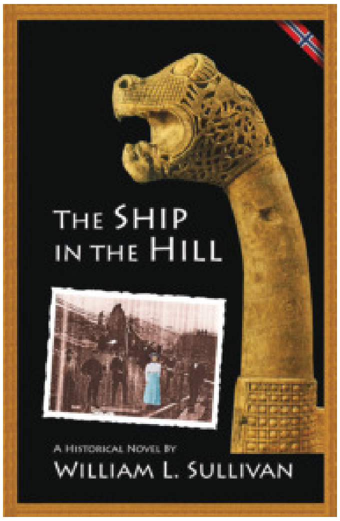
New analysis of human remains found at the site of Charterhouse Warren in southwest England has revealed shocking evidence of a macabre event that occurred in the Bronze Age (ca. 2500–700 B.C.). In the 1970s, 3,000 fragments of human bone were discovered near the bottom of a narrow, 50-foot-deep cavern, but for the last half century, little has been learned about them. Now, using radiocarbon dating and DNA analysis, researchers have determined that the remains belonged to at least 37 men, women, and children who were violently murdered between 2210 and 2010 B.C. Many of the bones show evidence of blunt force trauma, and that, after the individuals were killed, their bodies were dismembered, defleshed, and tossed into the abyss. There is even evidence of cannibalism, including cut marks and human teeth marks on the bones. "This was not a common occurrence in Britain at this time," says University of Oxford archaeologist Rick Schulting. "It is possible that any cannibalism that occurred was only token and that the main point was to treat these individuals as though they were animals."

The bone assemblage may represent an entire small community that was massacred, perhaps as an act of revenge for some transgression. "Until now, we have had very limited evidence for violence in Early Bronze Age Britain and the dominant impression has been of a relatively peaceful time," Schulting says. "But sometimes a single site can radically change our perceptions, and I think that Charterhouse has the potential to do just that."

—Jason Urbanus


Skull with blunt force trauma

Bone with defleshing grooves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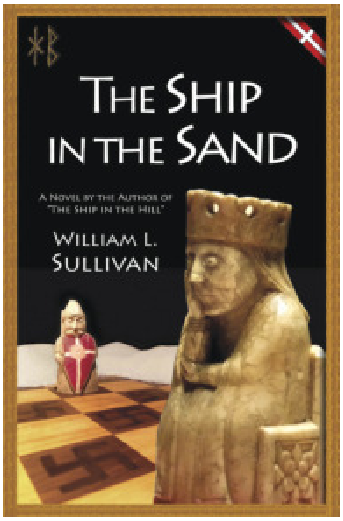
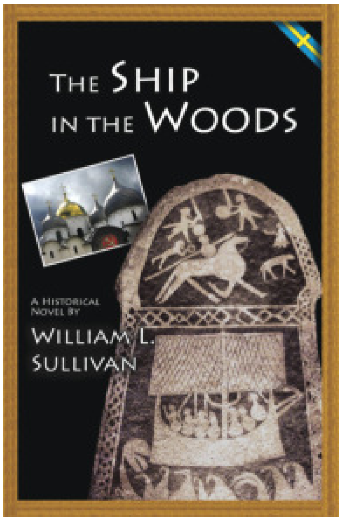

The Ship in the Sand
A Novel by the Author of "The Ship in the Hill"
William L. Sullivan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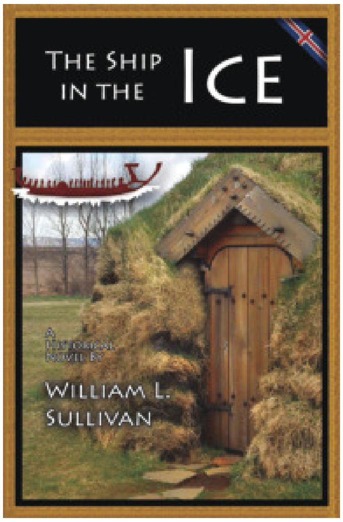
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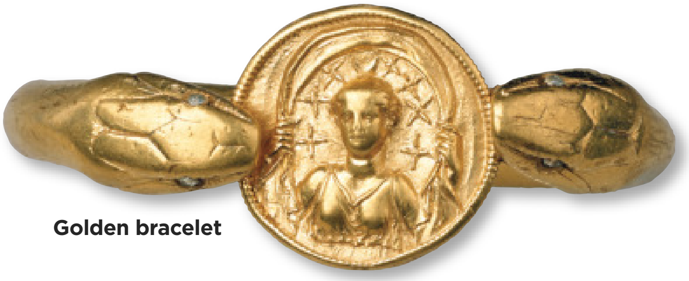
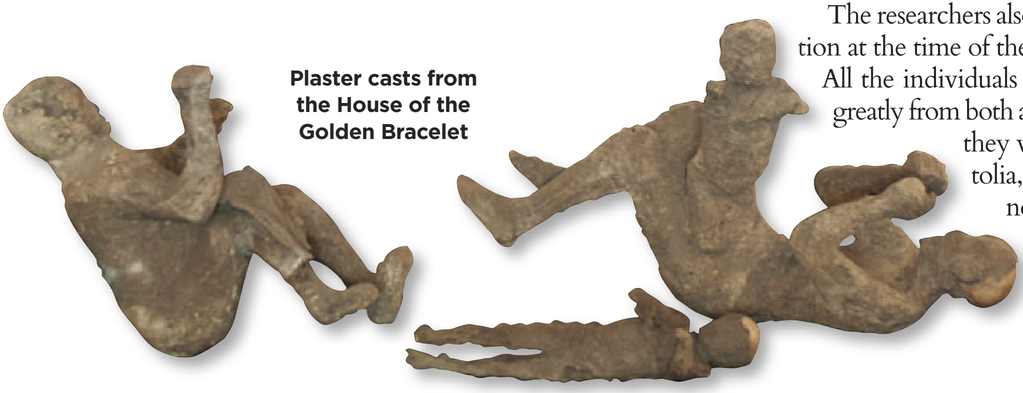
POMPEII FRIEND GROUP

When the A.D. 79 eruption of Mount Vesuvius blanketed the southern Italian city of Pompeii in layers of volcanic debris, it preserved the bodies of many individuals who had perished. Since archaeologists began excavating these remains in the mid-eighteenth century, they have speculated about who these deceased Pompeians were and how they were related. A team of scholars has now extracted DNA from skeletal remains in plaster casts of 14 individuals, revealing that many long-held assumptions about those who died may be incorrect.



Golden bracelet

In 1974, four bodies were discovered very close to one another at the foot of a staircase in the House of the Golden Bracelet. (See "Family History," January/February 2016.) Scholars assumed that this group consisted of members of a single family: two adults and two children. One of the adults, who was wearing a golden bracelet, had one of the children perched on her hip and was presumably the child's mother. The new research has established, however, that all four individuals were, in fact, male, and that none were related.



Plaster casts from the House of the Golden Bracelet

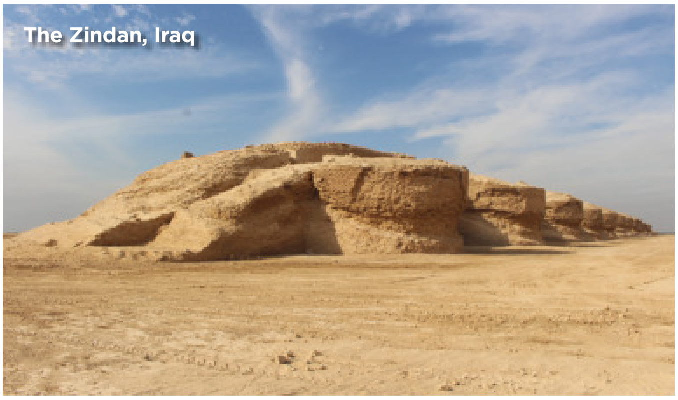
The researchers also confirmed that Pompeii's population at the time of the eruption was surprisingly diverse. All the individuals studied had genomes that differed greatly from both ancient and modern Italians. Instead, they were similar to populations in Anatolia, the Levant, and North Africa. It is now believed that many first-century A.D. Pompeians were of eastern Mediterranean descent and had recently arrived, highlighting the city's cosmopolitan makeup.

—JASON URBANUS

PRISON OR FORTRESS?

Some 50 miles northwest of Baghdad, archaeologists and a large team of local workers have revealed the standing remains of a neglected Sasanian-era (A.D. 224–651) site known as the Zindan, a Persian word for prison. In the tenth century A.D., Arab geographer and traveler Ahmad ibn Rustah reported that, according to local folklore, the imposing brick structure once held 7,000 prisoners of the Sasanians, an Iranian dynasty that controlled much of the Near East. In the nineteenth century, archaeologists visited the site, then mostly covered with earth, and suggested that it was actually part of a royal palace complex.

Since 2021, archaeologist Ahmed Abdul Jabbar of the Iraqi State Board of Antiquities and Heritage has led a team that has thus far removed some 17,000 tons of soil and rubble from the Zindan. They have discovered that the structure, which is a third of a mile long and rises as high as five stories, had 16 towers and was studded with defensive features such as arrow slits that suggest it was a fortress. Artifacts recovered from the site, including arrowheads, support the idea that soldiers patrolled the towers. Jabbar notes that the royal Sasanian city of Dastagird lies some three miles to the north and that the Zindan likely served as one of its defensive linchpins. His team has also unearthed evidence that the Zindan was heavily damaged, very likely when the Byzantine emperor Heraclius (reigned A.D. 610–641) invaded the Sasanian heartland in A.D. 628 and sacked Dastagird during a conflict known to modern scholars as the Last Great War of Antiquity.



The Zindan, Iraq

—ERIC A. POWELL

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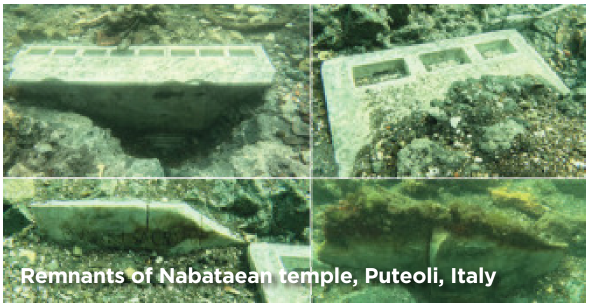
NABATAEANS ABROAD

The waters of the Bay of Naples may seem a far cry from the deserts of modern Jordan and Saudi Arabia, home of the ancient Nabataeans, a Semitic-speaking people who established a powerful kingdom in the second century B.C. Nonetheless, underwater archaeologists have discovered submerged remnants of a temple dedicated to the Nabataean god Dushara in the bay off the coast of the ancient Roman town of Puteoli, around 12 miles from Naples. Puteoli was one of the largest ports in the Mediterranean beginning in the first century B.C. For two centuries, enterprising Nabataean merchants, as well as traders from Egypt and Phoenicia in the Levant, established communities there to take advantage of the town's burgeoning trade connections. Along with their business acumen, Nabataeans brought their religious traditions.


Remnants of Nabataean temple, Puteoli, Italy

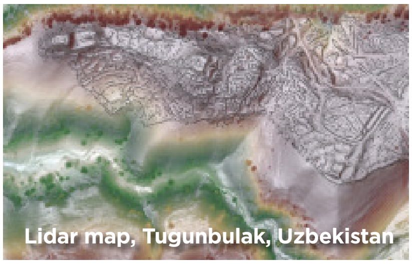
Ancient building remnants, Puteoli, Italy

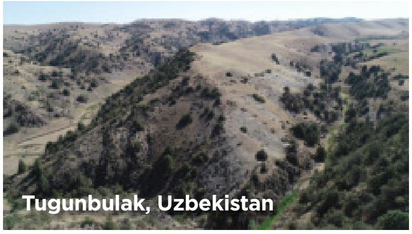
Archaeologists identified two submerged marble altars, two rooms with plastered walls, and a marble slab with the inscription "Dusari sacrum," meaning "consecrated to Dushara." These items all belong to the only known Nabataean temple outside their homeland. Although several altars and inscribed slabs related to the temple were found in Puteoli during the eighteenth and nineteenth centuries, its precise location remained unknown. "I've been looking for this building for twenty years," says archaeologist Michele Stefanile of the Southern Graduate School. "It's simply amazing, something that happens once in a lifetime." He notes that among the most interesting aspects of the temple is that, despite continuing to honor Dushara, the Nabataeans made deliberate choices to assimilate to their new home. These include the simple Roman-style inscription written in Latin and the typically Roman shape of the altars.

—Jarrett A. Lobell

SILK ROAD MOUNTAIN TOWNS

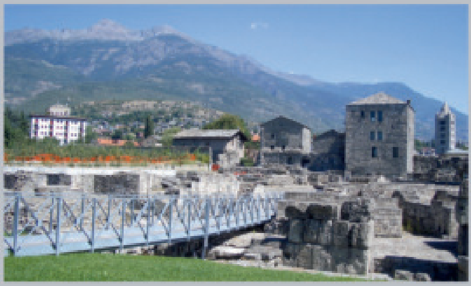
Scholars studying the Silk Road have traditionally seen mountain ranges as obstacles standing in the way of merchants who plied the trade routes that connected China and western Eurasia. Now, a team led by archaeologist Michael Frachetti of Washington University in St. Louis and Farhod Maksudov of Uzbekistan's National Center of Archaeology have discovered two previously overlooked medieval cities that flourished in the mountainous terrain of eastern Uzbekistan and were once stops on that fabled trade route. The cities, which are now known as Tashbulak and Tugunbulak, perch more than 7,000 feet above sea level. They were occupied during the height of the Silk Road, from roughly the sixth to eleventh centuries A.D., and would have been ruled for some of their existence by the Qarakhanids. (See "Unearthing an Elusive Empire," page 34.)


Lidar map, Tugunbulak, Uzbekistan


Tugunbulak, Uzbekistan

Using lidar-equipped drones, archaeologists mapped both sites, revealing that Tashbulak was a modest city of about 30 acres, while Tugunbulak, three miles away, was a major urban center whose fortifications and multistory buildings sprawled across some 300 acres. "Tugunbulak is really a unicorn," says Frachetti. "We don't have comparable cities at that scale at that elevation in Central Asia." Medieval sources refer to a city in what is now eastern Uzbekistan known as Marsmanda that was located "where the rivers froze" and where monthly fairs were held at which iron objects and weapons were sold. "We think Tugunbulak is a candidate for Marsmanda," says Frachetti. "It matches up with certain details of that narrative." Copious amounts of iron slag unearthed in one of Tugunbulak's main towers are evidence that the city was a major center of metal production. Future excavations may yet help solidify the site's identification as Marsmanda.

—Eric A. Powell



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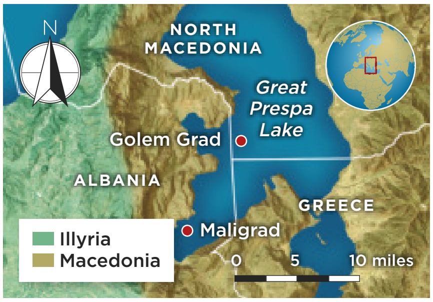
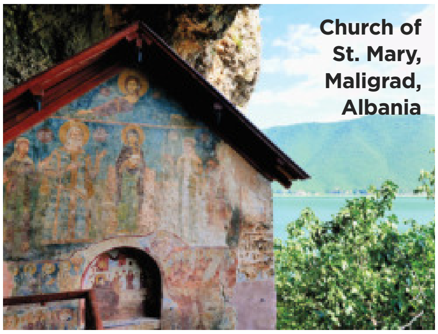


First settled at least 7,200 years ago, Great Prespa Lake still entices people for many of the same reasons it has since Neolithic times: The climate is pleasant, the freshwater fishing is good, and the hilly terrain protects against unwelcome intruders. Archaeological sites dot the lake's shores, now split among North Macedonia, Albania, and Greece, but the best-preserved today are on two small islands, Golem Grad, meaning "Big Town," in the North Macedonian sector of the lake, and Maligrad, or "Small Town," in the Albanian sector. The sites have yielded substantial finds from nearly four millennia of human activity, from roughly 2200 B.C. to the Ottoman conquest in the late fourteenth century A.D.

Golem Grad showcases the life of a village from the ancient to medieval period. Neolithic Prespans fished at Golem Grad, but the settlement truly began to flourish in the fourth century B.C. Archaeologist Vera Bitrakova-Grozdanova of the Macedonian Academy of Sciences and Arts excavated on the island over the course of five decades and found graves filled with artifacts such as ceramic vessels, weapons, and coins minted by Philip II of Macedon (reigned 359–336 B.C.). She also unearthed gold and silver jewelry decorated with motifs including the Macedonian sun, often a symbol of ancient Macedonian royalty. In one house, the team found a second-century B.C. roof tile inscribed with the names of two craftspeople, one Macedonian and one Illyrian. "Multiple populations coexisted in Prespa in antiquity," says Bitrakova-Grozdanova. "Their mutual relations were cultural and commercial." Beginning in the fifth century A.D., the island's inhabitants began building churches, and Golem Grad was transformed into a monastic community.

Maligrad, a tadpole-shaped islet less than half a mile from the shore, became a busy place around 1400 B.C. Archaeologists working atop a promontory have revealed evidence of the islet's heyday, which extended into the Iron Age (ca. 1000–500 B.C.). Perhaps the most intriguing discovery from the era is a four-handled amphora containing a child's bones that was lodged in the bedrock. "We think the vessel was part of a religious practice intended to protect the settlement," says archaeologist Adem Bunguri, codirector of the Greek-Albanian Archaeological Expedition at Maligrad, members of which have been excavating there since 2009. According to Bunguri, a spiral gold pendant from the same early Iron Age period as the amphora provides evidence of a prosperous nascent aristocracy. A Roman-era revival on Maligrad ended abruptly with a Slavic invasion in the sixth century A.D., evidenced by headless and arrow-struck skeletons that archaeologists have found in hasty burials on the island.


Church of St. Mary, Maligrad, Albania

Great Prespa Lake

THE SITES

Golem Grad is the better preserved of the two sites, with four house foundations dating from the second century B.C. to the fourth century A.D., the ruins of six Roman- and Byzantine-era churches, and a fourth-century A.D. cistern, all scattered throughout its forested wilderness. It is also a wildlife sanctuary for birds and snakes. Reaching the island requires a bumpy drive and a 45-minute motorboat ride. The archaeological site on Maligrad is sometimes kept off-limits to protect the excavations, but a cave on the side of the promontory hides the jewel box Church of St. Mary, covered inside and out with some of the best-preserved and most resplendent Late Byzantine frescoes in the region. The finest paintings date to the church's construction in 1345.

WHILE YOU'RE THERE

Tour operators can help you rent a kayak or hire a motorboat from the Albanian town of Pustec to get to Maligrad and several shoreside cave-hewn churches where Christian hermits once dwelled. For more encounters with southeastern Albania's ancient residents, check out the Kamenicë Tumulus, among the largest burials of its time in the Balkans, where more than 400 graves have been unearthed. A dinner or an overnight stay at Lakeview Hotel in Oteševo, North Macedonia, will transport you back to the 1950s, when the complex was a resort for Yugoslav president Tito and the political elite, with rooms now faithfully restored to mid-century Communist chic.

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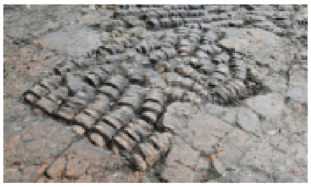
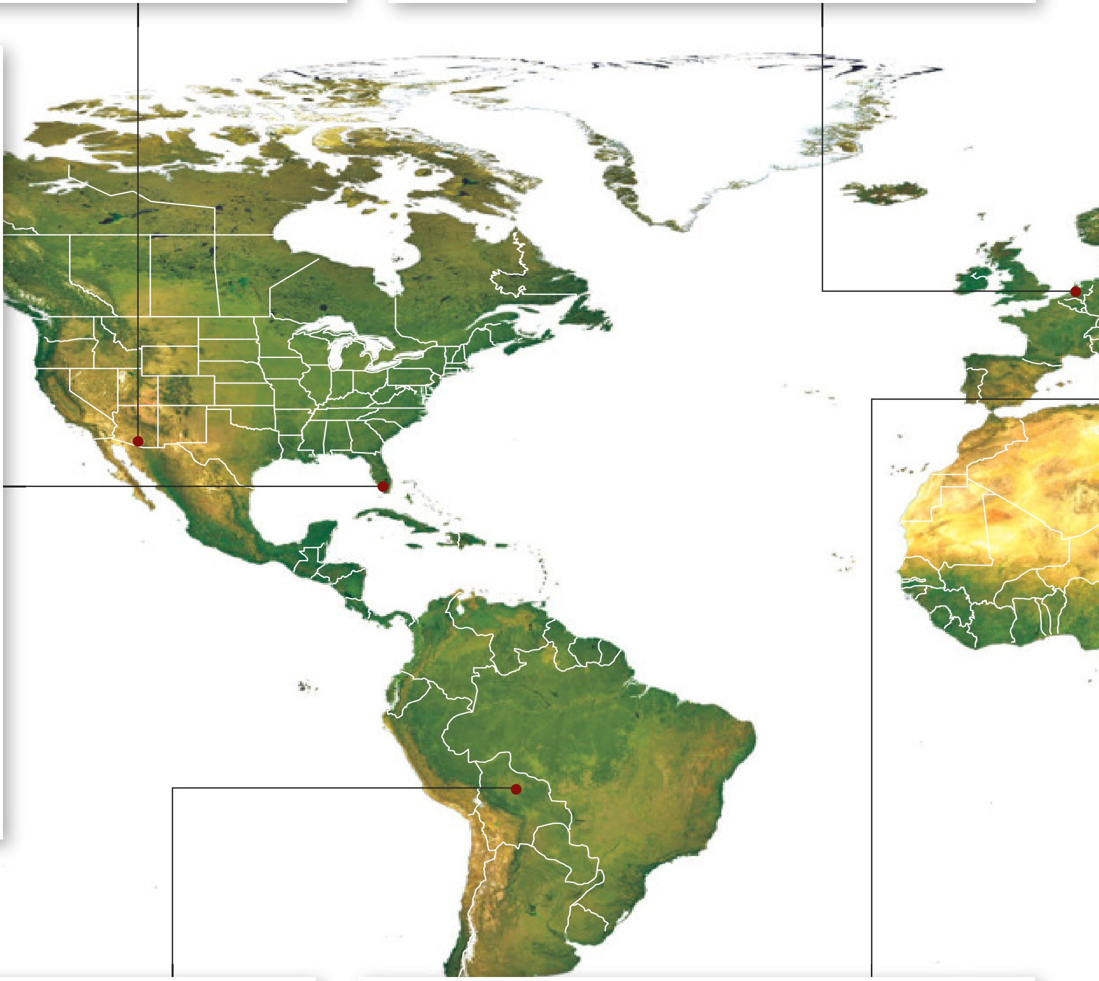
AROUND THE WORLD BY JASON URBANUS

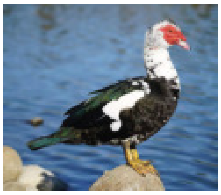
ARIZONA: A small cannon likely associated with Spanish conquistador Francisco Vásquez de Coronado's 1540–1542 expedition through the American Southwest may be the oldest firearm ever found in the continental United States. The weapon, which is 42 inches long and weighs 40 pounds, was discovered at the site of San Geronimo III, where Coronado's men established a settlement along the Santa Cruz River. The outpost was attacked by the Indigenous Sobaipuri O'odham in 1541. The Spaniards fled, leaving the gun behind.



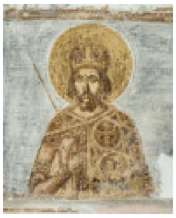
THE NETHERLANDS: While investigating a 400-year-old building in Alkmaar, archaeologists uncovered an earlier tile floor, which in and of itself isn't unusual. A number of floor tiles were missing—also not unusual. What was out of the ordinary, however, was that a portion of the surface had been patched with cattle bones, each one meticulously cut and carefully placed. Experts are unsure why residents took such an unusual step: Was it indicative of activities that occurred in the building or simply an inexpensive DIY fix?

FLORIDA: Burrfishes are rarely eaten because they can be lethal to humans. Curiously, massive amounts of burrfish remains were found at Mound Key, capital of the Indigenous Calusa people prior to the arrival of Europeans in the 16th century. The Calusa were masters at manipulating their marine environment, but archaeologists don't know why they harvested this deadly species. They speculate that the Calusa may have used burrfish toxins for medicinal or religious purposes or employed the spines as tattooing needles or spear tips.





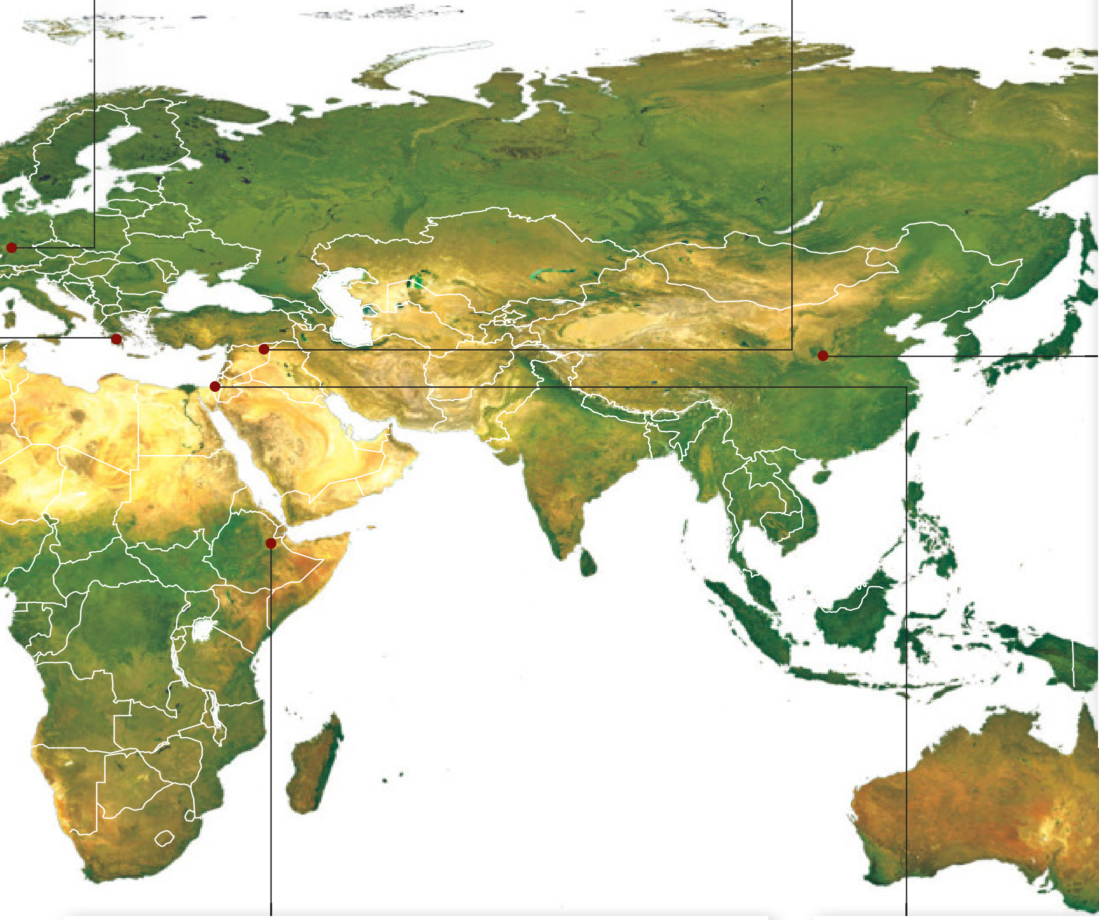
BOLIVIA: It had long been thought that, in the precolonial era, the Amazon Basin's environment was unfavorable for both food production and large-scale human settlement. However, archaeologists now know that the Indigenous Casarabe peoples thrived in the Llanos de Mojos region between A.D. 500 and 1400 by relying on maize cultivation. New isotope analysis of animal bones also indicates that the Casarabe domesticated local Muscovy ducks as early as A.D. 800 by feeding them maize.

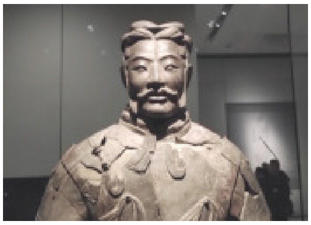


GREECE: During restoration of frescoes in the 15th-century Old Monastery of Taxiarches in Aigialeia, workers uncovered the only known portrait of the final Byzantine emperor, Constantine XI Palaiologos. The emperor wears a purple robe embellished with a double-headed eagle, the insignia of the imperial family. Scholars believe that Constantine personally sat for the artist shortly before he died in the 1453 battle in which Constantinople fell to the Ottomans, ending the Byzantine Empire.

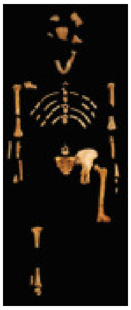
GERMANY: Archaeologists excavating a mid-third-century A.D. Roman necropolis in the town of Nida unearthed the grave of a man buried with a 1.4-inch-long silver amulet. Further inspection revealed that the object contained a tiny rolled-up piece of silver foil that was too brittle to unfurl. Researchers used CT scanning to digitally unroll the scroll, revealing, to their surprise, a Christian text. Christianity was very rare at this time, and the minuscule inscription is the earliest evidence of its spread north of the Alps.

SYRIA: Focaccia has become a popular culinary staple, but people may have first enjoyed it 8,400 years ago in Mesopotamia. A study of enigmatic pottery sherds from Neolithic sites along the Syria-Turkey border indicates that they were part of large ceramic pans used to bake focaccia-like breads made from wheat or barley flour and seasoned with lard or oil. The pans were even nonstick—a series of impressions on the tray's interior would have made it easier to remove baked bread.





CHINA: A rare high-ranking member of the famed Terracotta Army was unearthed in the mausoleum of China's first emperor, Qin Shihuangdi (reigned 221–210 B.C.). Qin's tomb is protected by thousands of life-size clay soldiers—his army for the afterlife. The recently uncovered figure depicts a top military officer, one of only 10 such figures identified among the 2,000 statues that have been excavated, and the first of such rank to be uncovered in 30 years. The officer's elevated status is recognizable based on his posture, unique headdress, and colorful scale armor.



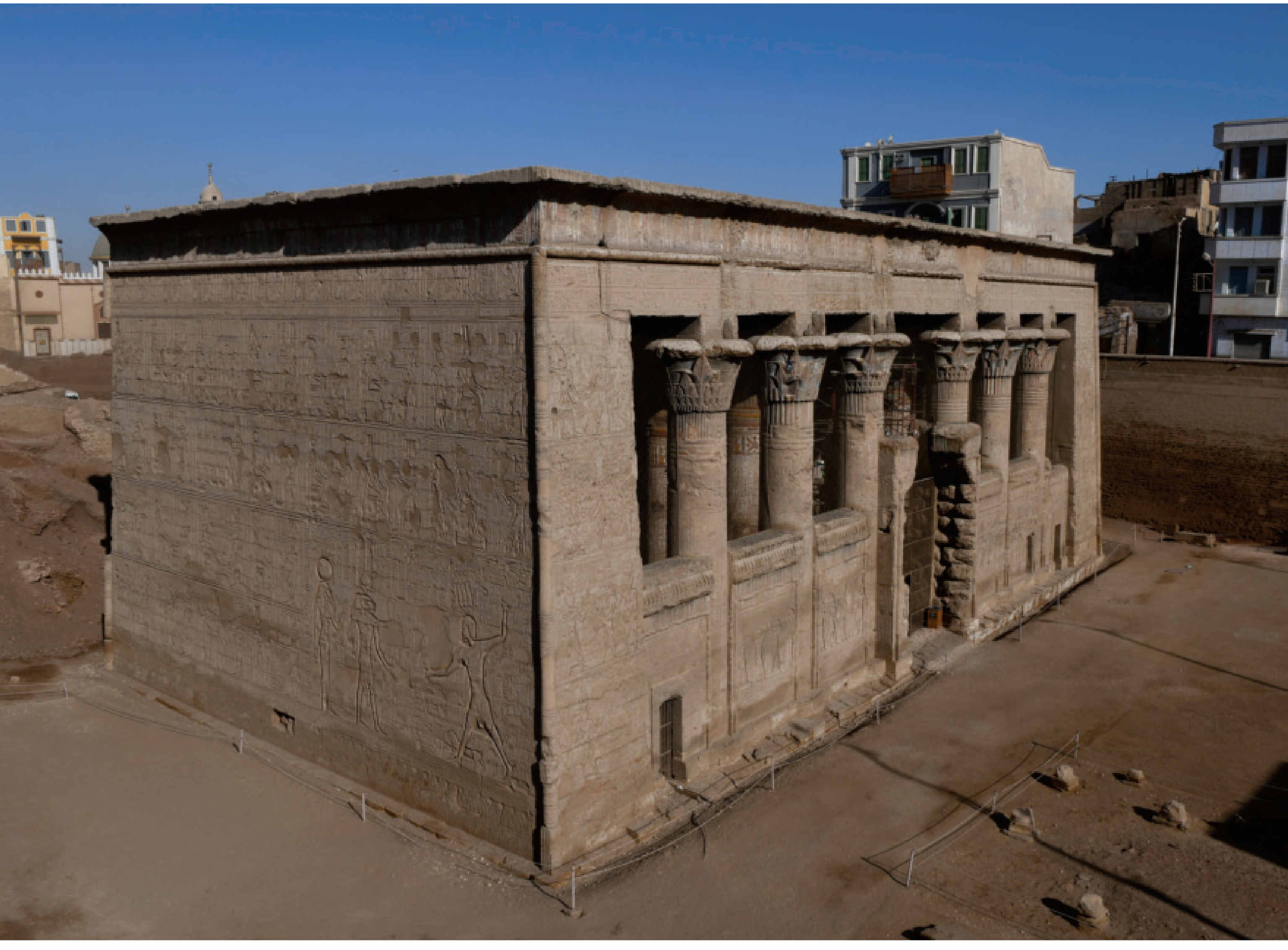
ETHIOPIA: The 3.2-million-year-old australopithecine skeleton known as Lucy discovered more than 50 years ago is our most famous hominin relative. A new study has revealed that, while Lucy could walk on two feet, she couldn't outrun an Olympic sprinter. Musculoskeletal modeling determined that Lucy's top speed was about 11 miles per hour—modern elite runners have reached speeds of more than 23 miles per hour. This suggests that the ability to run ever faster may have been a significant factor in the evolution of modern humans.

ISRAEL: People have taken shelter in the main chamber of Manot Cave for tens of thousands of years. Some even ventured into the darkest parts of the cavern for special gatherings. A stone carved in the shape of a tortoise was found in a niche of a hidden chamber located 8 stories below the cave's entrance. Scholars believe the stone was likely an object of worship and that the chamber was used for ritual gatherings 35,000 years ago, the earliest evidence of such behavior in Asia.

AN EGYPTIAN TEMPLE REBORN

By removing centuries of soot, researchers have uncovered the stunning decoration of a sanctuary dedicated to the heavens

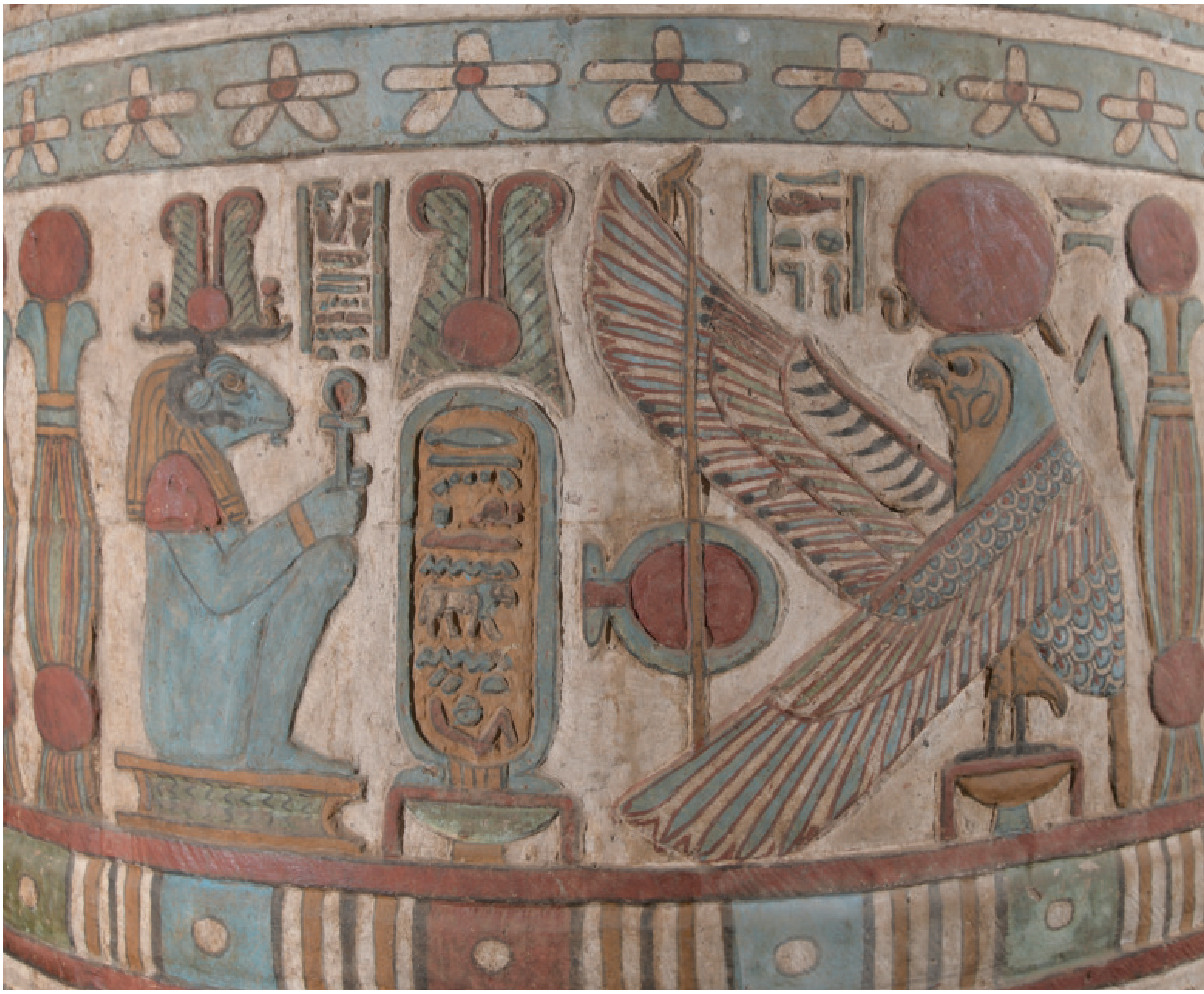
By Benjamin Leonard



Some 100 major temples towered over the landscape of Roman Egypt, though today only six still stand. One of the best preserved sits in a residential neighborhood in the modern city of Esna on the west bank of the Nile in Upper Egypt. The temple was dedicated to the creator god Khnum, his family, and the goddess Neith. Now 30 feet below street level, the temple's red sandstone pronaos, or entrance hall, is all that survives of what was once a larger complex. The other remnants of the temple, which stood behind the hall, are now buried beneath the city. In antiquity, the hall, which measures 120 feet long and 65 feet wide and stands 50 feet high, would have dwarfed the rest of the temple. Larger-than-life scenes carved on each of its exterior walls offered ancient worshippers a mere hint of the resplendent painted reliefs that still cover nearly every inch of the hall's interior.

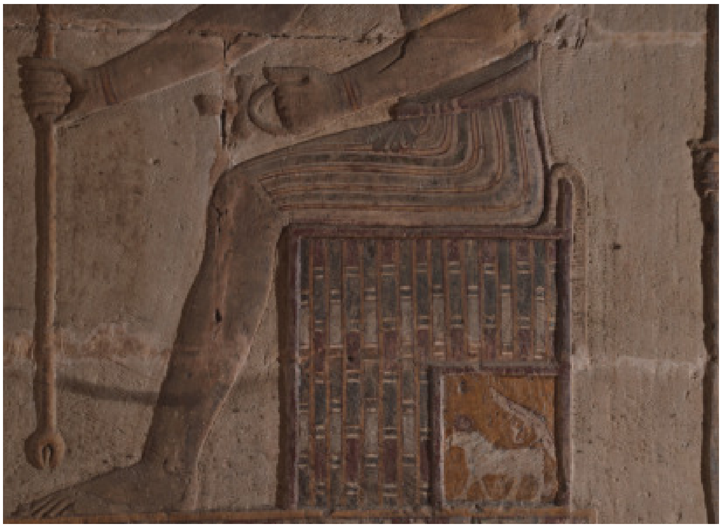
Construction of the temple's pronaos began after the emperor Augustus' conquest of Egypt in 30 B.C., but its decoration required centuries to complete. The entrance hall was constructed directly against the facade of the temple, which had been built during the rule of the pharaoh Ptolemy VI (reigned 180–145 B.C.), one of the kings in a dynasty of Macedonian royals who governed Egypt from 304 to 30 B.C. Throughout the hall, oval cartouches with the names of a long line of Roman emperors attest to the protracted time it took to finish the building and its decoration. Construction of the hall was likely completed in the mid-first century A.D., under the emperor Claudius. It took artisans until the reign of the emperor Decius, 200 years later, to finish carving and painting the building's elaborate relief decoration.

In the Egyptian city of Esna, a highly decorated entrance hall (left) completed during the mid-third century A.D. is the only surviving part of a temple dedicated to the creator god Khnum. A painted relief (below) on a column inside the hall features an oval cartouche containing the name of the Roman emperor Hadrian (reigned A.D. 117–138) flanked by Khnum, depicted as a ram, and Behedety, the falcon god of the midday sun.



In the late third or early fourth century A.D., by which time the temple had presumably been closed, the residents of Esna began to dismantle its main sanctuary and repurpose the building blocks to build canals. They used the pronaos as a shelter for the next 1,500 years, and, in the nineteenth century, it became a warehouse for storing cotton and ammunition. Over that stretch of time, fires lit inside for illumination and warmth gradually coated the bright paintings on the ceilings, columns, and interior walls in thick layers of dirt and soot. Parts of the pronaos were buried beneath sand until the twentieth century.

In the 1950s, Egyptologist Serge Sauneron cleared away the debris obscuring portions of the exterior walls. He then turned to the interior, recording those carved reliefs and hieroglyphic inscriptions that were visible to the naked eye. Although Sauneron gradually published the inscriptions and select drawings of the pronaos' decorations, his death in 1976 halted this documentation project. Most of the inscriptions he



Images of various gods appear on the walls of the entrance hall, including (left to right) Khnum seated on a throne at the bottom of which is a ram with a solar disk on its head; the creator goddess Neith; and Neith's sons, Shemanefer and Tutu.

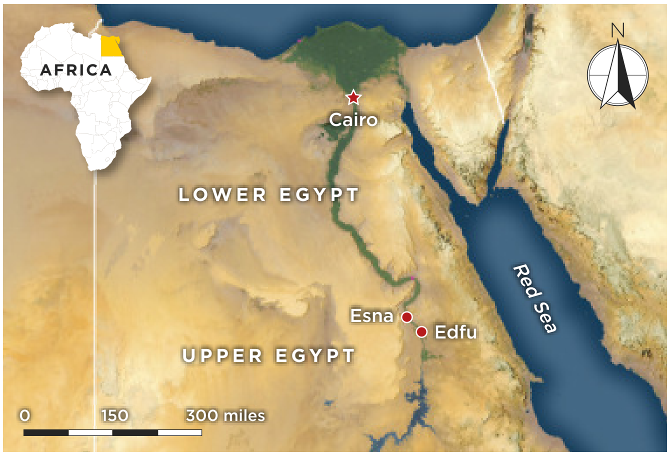
transcribed were never translated.

The hall's reliefs were still completely covered in soot when, in 2018, a joint Egyptian-German team, led by Egyptologist Christian Leitz of the University of Tübingen and Hisham El-Leithy, undersecretary of state for documentation of the Egyptian Ministry of Tourism and Antiquities (MoTA), began to restore the designs' vibrant colors to their former brilliance. Using primarily distilled water and alcohol, MoTA conservators supervised by Ahmed Emam have now cleaned the hall's 18 interior columns, all seven of its ceiling bays, and sections of its southern and western walls. In the process, they have revealed hitherto hidden images and nearly 200 painted inscriptions on the ceiling and crossbeams that Sauneron hadn't been able to see. "Salt crystallization had affected the colors and caused some flaking of the reliefs," El-Leithy says. "The conservation team cleaned the layers of soot, dust, and dirt, and the bright colors of the paintings and inscriptions can now be appreciated."

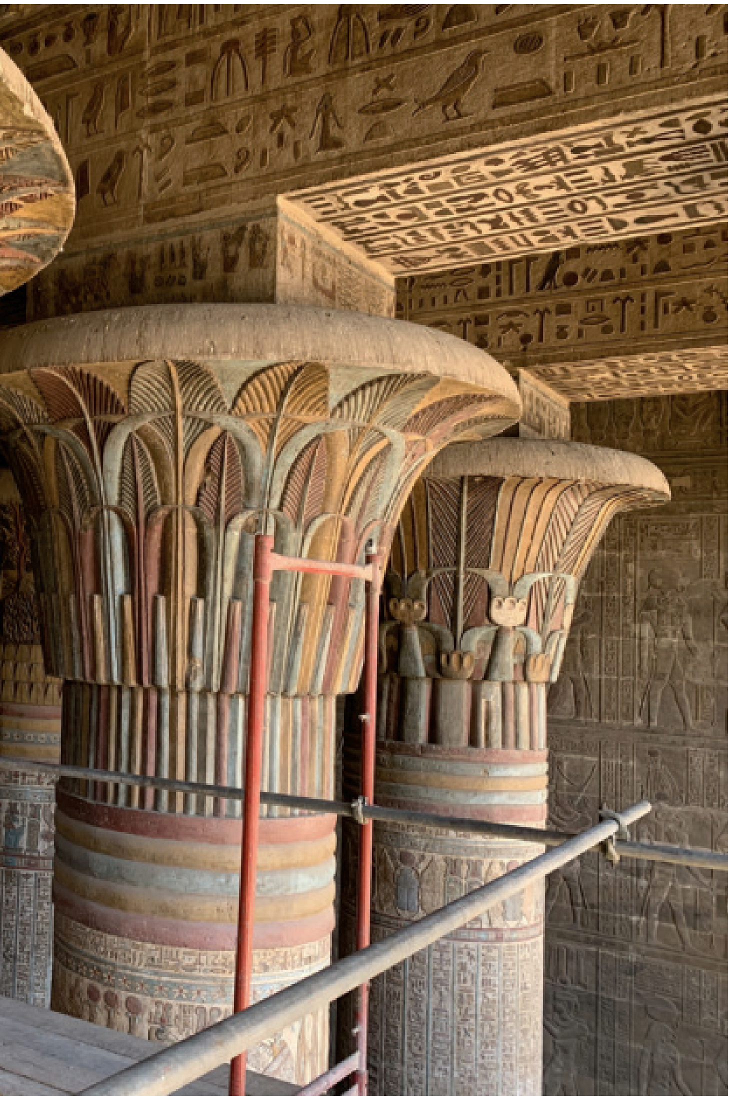
As work continues, researchers are beginning to discover the many interconnections among scenes and inscriptions, even across parts of the hall where decorations were completed centuries apart. "In our view, there was a general master plan for everything," says University of Tübingen Egyptologist Daniel von Recklinghausen. "Once the hall was finished by the mid-first century A.D., someone, or perhaps many people, made a master plan for the decoration that incorporated everything—the exterior and interior walls, the columns, and the ceilings, all of it." The team has uncovered and photographed scenes that reveal how ancient Egyptians depicted and worshipped their gods and how they conceived of the universe through the astronomical objects and astrological signs that they used to adorn the ceiling.

DEITIES

During the Ptolemaic and Roman periods, Egyptians continued to worship their traditional gods even as foreign rulers introduced new deities. Priests oversaw the construction of new temples and cult centers dedicated to major deities of the Egyptian pantheon, who were venerated alongside local gods in cities throughout Upper and Lower Egypt. Although worship of Khnum dates back some 4,000



years, the origins and evolution of his cult at Esna and other religious centers are opaque. Khnum was always connected with creation, fertility, and the Nile. He was usually depicted as a ram, or with a ram's head, and occasionally as a crocodile.



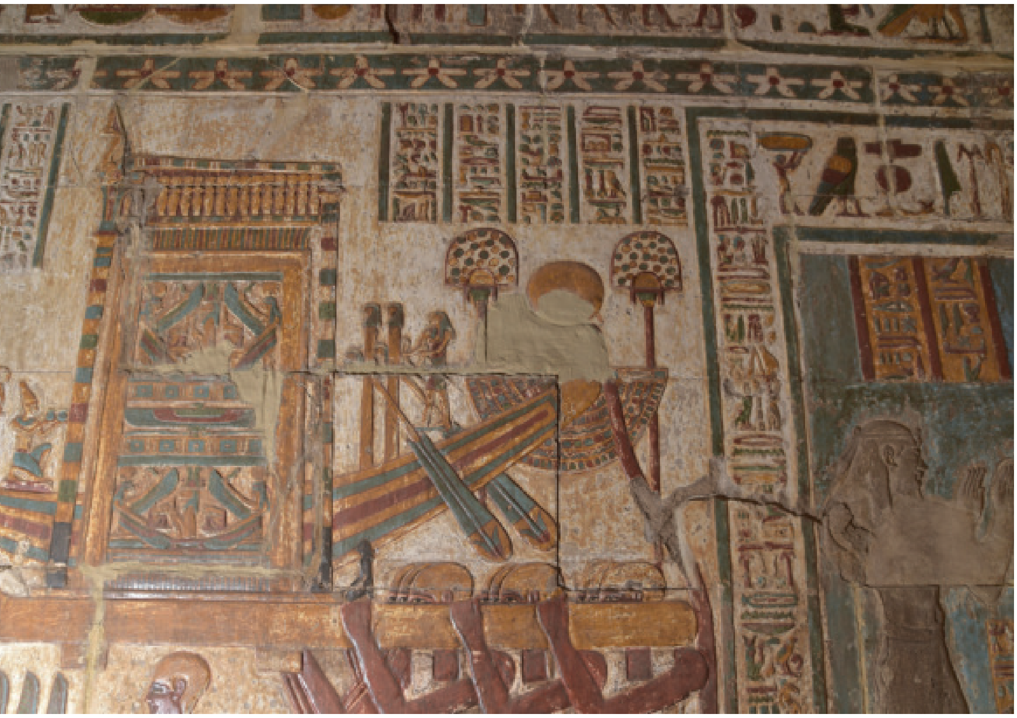
By the time of the New Kingdom (ca. 1550–1070 B.C.), Khnum was portrayed as fashioning all living things on a potter's wheel. At Esna, he was venerated as Khnum-Ra, signifying the addition of the sun god Ra to his divine power. Leitz suggests that the choice of red and yellow, both commonly used to depict the sun, as the dominant colors for the reliefs in the entrance hall might symbolize this connection between Khnum and Ra.

At some point, perhaps during the second century B.C., the cult of Khnum in Esna came to encompass another creator deity, the goddess Neith. Hymns carved on the hall's columns and walls praise Khnum and Neith as the Lord and Lady of Esna. According to a myth recorded on one of the columns, Neith, who is called "mother of mothers," gave birth to Ra and other gods by speaking their names. "Both these deities are responsible for the creation of a whole universe," von Recklinghausen says. "You find this idea of creation everywhere in the temple."

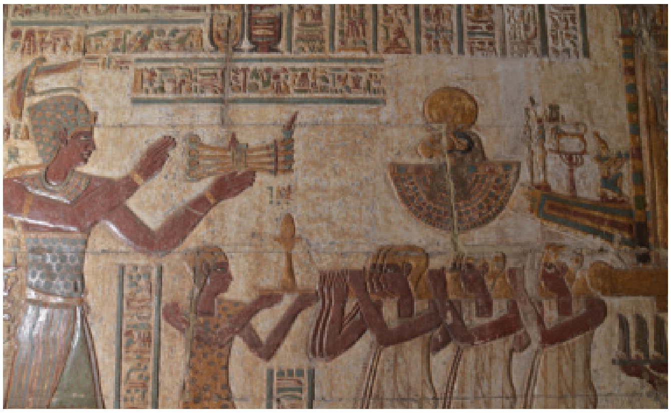
Each column in the pronaos features ritual scenes on its lower part and is inscribed with 28 vertical panels of hieroglyphs, each 13 feet tall. "These texts describe the cult of the gods of Esna, which we don't have at this length in any other temple," says Leitz. "There are hymns and litanies to Khnum, Neith, Khnum's other consorts—Menhit and Nebtu—and his son Heka." One column preserves a 143-verse litany to Khnum-Ra praising everything the god has brought into being.

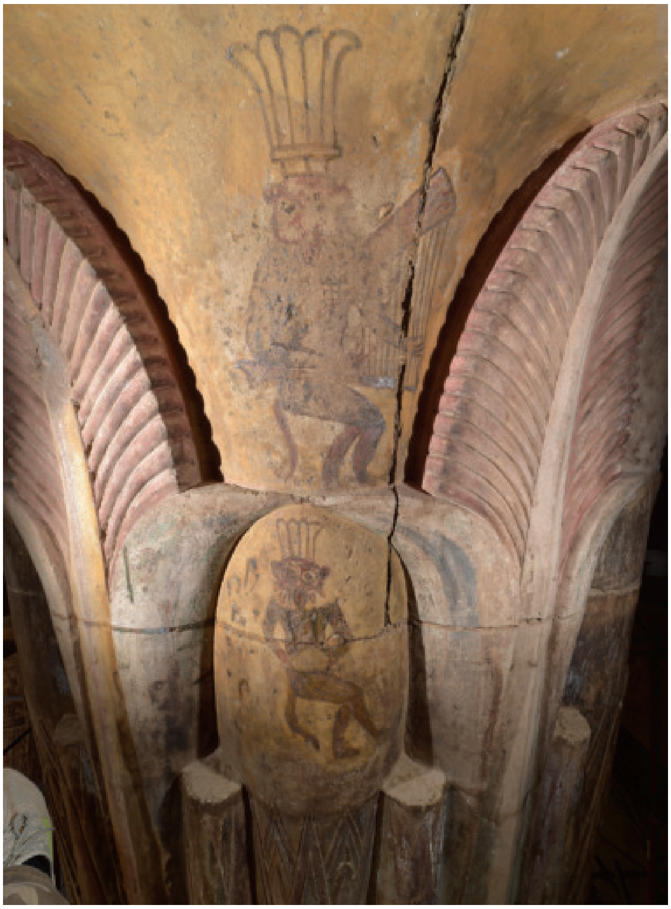
The layout of the inscriptions provides a remarkable example of the ingenious interactions between text and images in the pronaos. The 28 panels on each column are evenly spaced around its circumference. On some panels, Leitz explains, hieroglyphs face directly toward pictorial scenes that illustrate offerings described in the text and, in one case, toward a small door through which offerings were brought into the temple.

While cleaning the entrance hall, conservators revealed the original colors painted on column shafts and lotus-leaf capitals, as well as previously hidden hieroglyphic inscriptions on the crossbeams and walls.



Images along the temple's processional route include a scene (above) depicting a ritual honoring Khnum, with priests carrying the god's shrine on a solar boat. Another scene (below) shows the emperor Trajan (reigned A.D. 98–117) presenting incense and a priest offering a potter's wheel to Khnum. An interior capital (below right) shows the dwarf deity Bes playing a harp and a drum, suggesting that music was part of the festivities.





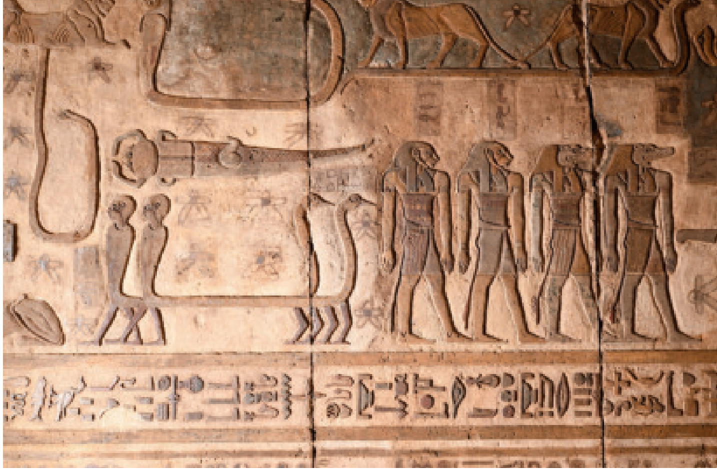
RITUALS

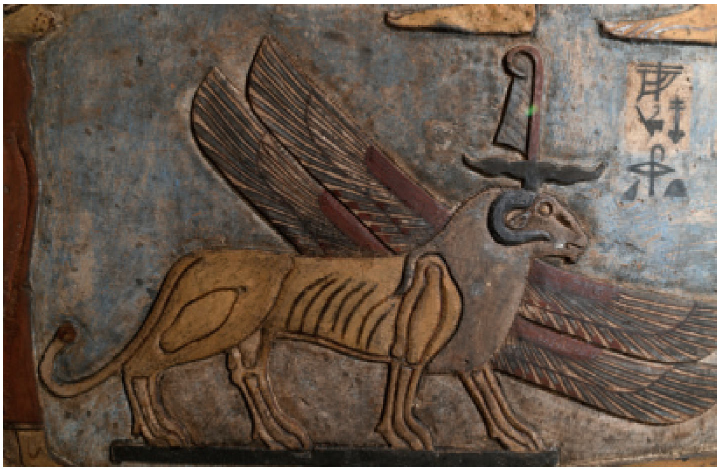
At the temple of Khnum in Esna, as at every Egyptian temple, priests performed daily rituals. In the entrance hall, however, activities were likely limited to special celebrations that occurred on many dates throughout the year, chief among them New Year's Day. A lengthy calendar of festivals beginning on that day is inscribed alongside the hall's southeast and northeast doors. Next to each date is a brief description of that particular day's main rites. In all, the festivals listed on the calendar amount to 90 days of celebrations per year. "More or less every second week there would have been a festival taking place," von Recklinghausen says. "There seem to have been two or three main feasts as well as more frequent smaller feasts."

Although the entrance hall features a wealth of texts and scenes concerning the feasts, rites, and offerings on festival days, its function as part of these proceedings is unclear. "We're not really certain what happened inside the pronaos," says Leitz, "but we do know that the temple's main entrance was only opened during the big feasts." Inscriptions specify the conditions worshippers were required to meet to enter the temple precinct on these days. "They had to be clean and to abstain from intercourse for eight days before," Leitz says. "Women and foreigners had no access at all. They had to wait outside the temple."

Recently cleaned reliefs on the pronaos' interior walls provide tantalizing clues as to what the rites honoring Khnum involved. One scene shows the emperor Trajan (reigned A.D. 98–117) dedicating four incense burners to the god, while a priest clad in leopard skin standing in front of him offers Khnum a potter's wheel. Another portrays priests carrying the solar boat of Khnum, in which the god's shrine sits, out of the temple's inner sanctum. On special occasions, such processions would have traveled from the

The hall's ceiling features images of mythical creatures that personified constellations and elements of the natural world. These include (right) an eight-legged hybrid human figure with goose and human heads identified by an inscription as "the two geese of Ra," an otherwise unknown entity. A winged lion with a ram's head (below) represents the south wind.





inner sanctum into the entrance hall, down its central aisle, to the throngs of worshippers gathered outside. "I think the pronaos was a very important part of this ritual procession and the feasts," says von Recklinghausen. "It was probably the first point where the procession halted so that hymns could be read aloud or sung."

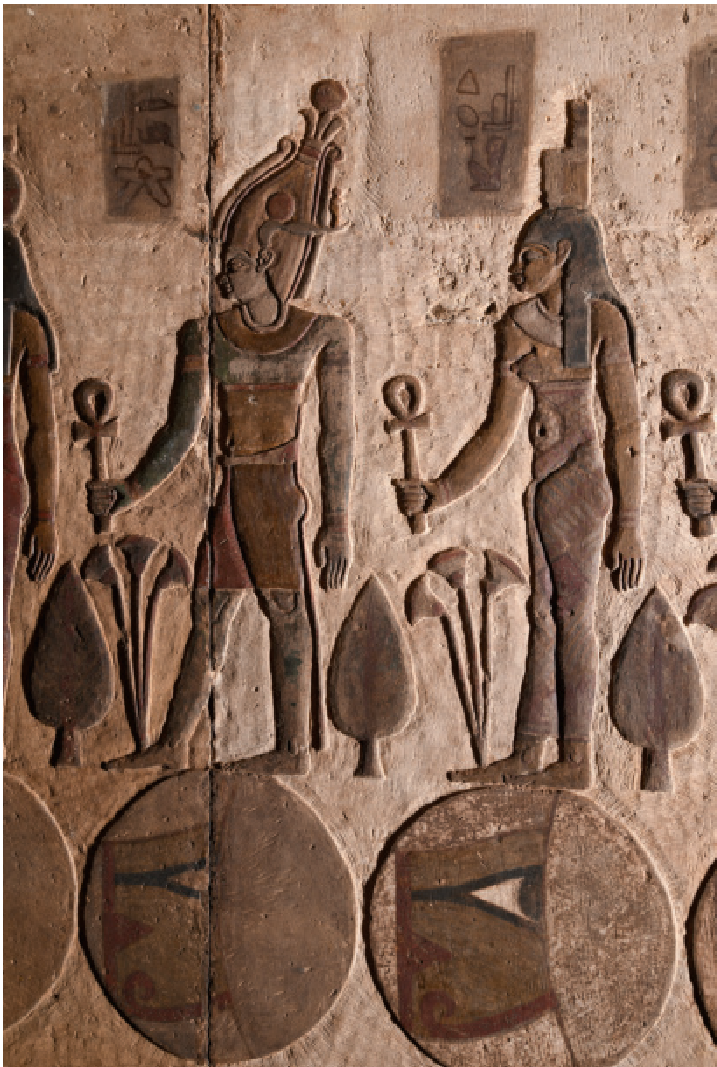
HEAVENS

By the time artisans began to create the decorations in the temple of Khnum at Esna, Egyptians had observed the paths of the sun, moon, and stars for thousands of years, and their knowledge of astronomy formed the foundations of their religion. They believed that certain celestial bodies were incarnations of their gods; for example, the rising sun symbolized Ra's creation of the world, and its path reflected his daily rebirth. Thus, representations of astronomical phenomena were fitting subjects for Egyptian temples.

Each ceiling bay of the pronaos features a particular astronomical theme surrounded by stars. The three bays on either side of the central aisle show the lunar cycle, with the deities of the waxing and waning moon standing on disks; 36 figures called decans, stars or constellations that measured the 12 hours of the night; the course of the sun, which is shown on two bays; the 12 signs of the zodiac; and various other constellations. Peculiar hybrid creatures—including winged snakes and a bird with a crocodile head and four wings—are depicted across the ceiling and are thought to represent constellations. "Most of these creatures are accompanied by rectangles in which we found painted inscriptions that give us the names of these strange beings," Leitz says. "But this doesn't necessarily mean we know which stars they refer to."

The ceiling also contains representations of much better-known constellations that played crucial roles in Egyptians' mythology and conception of the cosmos. A bay on the north side of the hall depicts a few of the most important deities in the Egyptian pantheon. On one side of the bay is the constellation Orion, depicted as the god Osiris. He is accompanied by Sothis, the divine personification of Sirius—the brightest star in the night sky—in the guise of Isis, Osiris' wife and sister. "Orion and Sothis were the two main deities of the southern sky," says Leitz. "Orion turns his head to Sothis. The astronomical reason for this is that Sothis rises a bit more than an hour and a half later than Orion." In Egyptian mythology, Osiris was murdered by his brother Seth, the god of confusion and disorder. Isis was able to reassemble her husband's dismembered body, bringing Osiris back to life, after which he became god of the underworld.

On the other side of the bay, a bull's leg is tethered to a chain held by a hippopotamus goddess. The leg represents the Big Dipper, whose seven bright stars are depicted surrounding it. "The

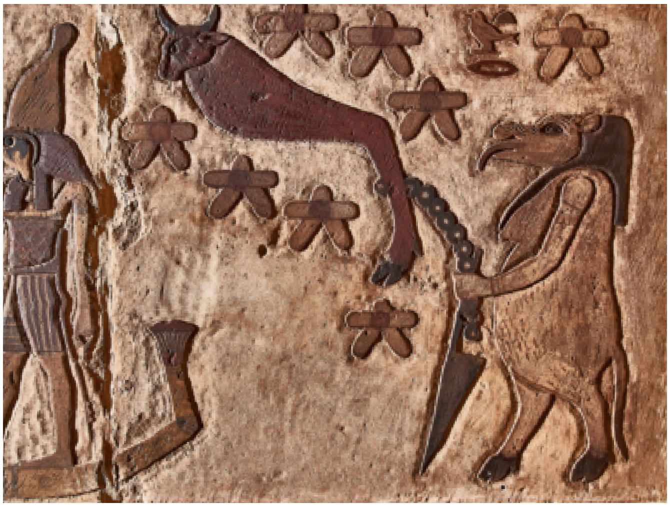


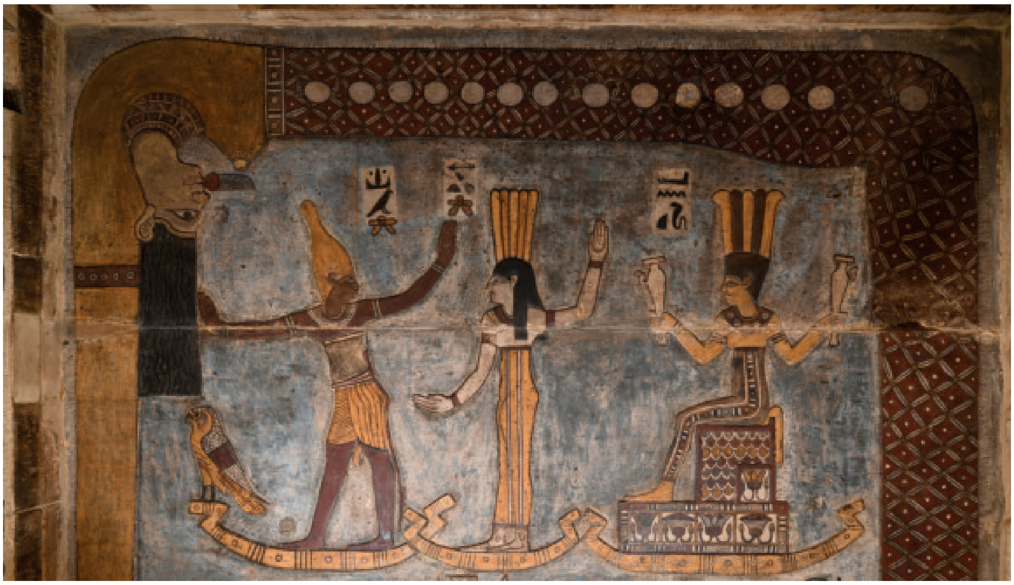
One part of the ceiling features depictions of moon deities standing atop disks in which images of the *wadjet* eye, or Eye of Horus, grow larger as the moon waxes.

Big Dipper is a representation of the god Seth," Leitz says. "Even though Osiris was reanimated after his murder, Seth was interested in killing him again. This hippopotamus deity is therefore preventing the Big Dipper from descending too far under the horizon into the underworld."

During the Old Kingdom (ca. 2649–2150 B.C.), especially in Lower Egypt, the Big Dipper was a circumpolar star cluster—one that never dipped below the horizon. The gradual change in the tilt of Earth's axis, however, causes the stars' positions to shift. This would have slightly, though significantly, altered the Big Dipper's location in the sky by the time of the New Kingdom, says Leitz, particularly from a southern vantage point such as Esna. "One star of the Big Dipper could have gone beneath the horizon, and Seth could have entered the underworld," he says. "This must have been a disturbing occurrence in Egyptian mythology. What is Seth doing in the underworld during these hours?"

Orion and Sothis also appear in the pronaos' southernmost ceiling bay. Under a border depicting the sky goddess Nut swallowing the sun, the deities are shown riding in separate boats, with Orion in the lead looking back at Sothis. After conservation, the researchers found a hieroglyph featuring 10 stars painted above the deities. "On the night before the Egyptian New Year festival, Orion rises in the tenth hour, and Sothis follows in the twelfth hour," says Leitz. "After approximately seventy days of invisibility in the night sky, Sirius rises for the first time in the east." This astronomical event occurred in mid-July and marked New Year's Day for the Egyptians, which for thousands of years was one of their most important festivals. It coincided with the annual Nile flood. In the scene, Orion and Sothis are followed by Anukis, the goddess of the inundation of the Nile, who was also responsible for the river's recession 100 days after the new year.





Some deities depicted on the ceiling represent celestial bodies. A hippopotamus goddess (top) holds a chain wrapped around a bull's leg, which represents the Big Dipper, a constellation the Egyptians believed was personified by Seth, the god of chaos. Another scene (above) depicts three deities associated with New Year's Day: (left to right) the constellation Orion; Sothis, or the star Sirius; and Anukis, goddess of the annual Nile flood.

ZODIAC

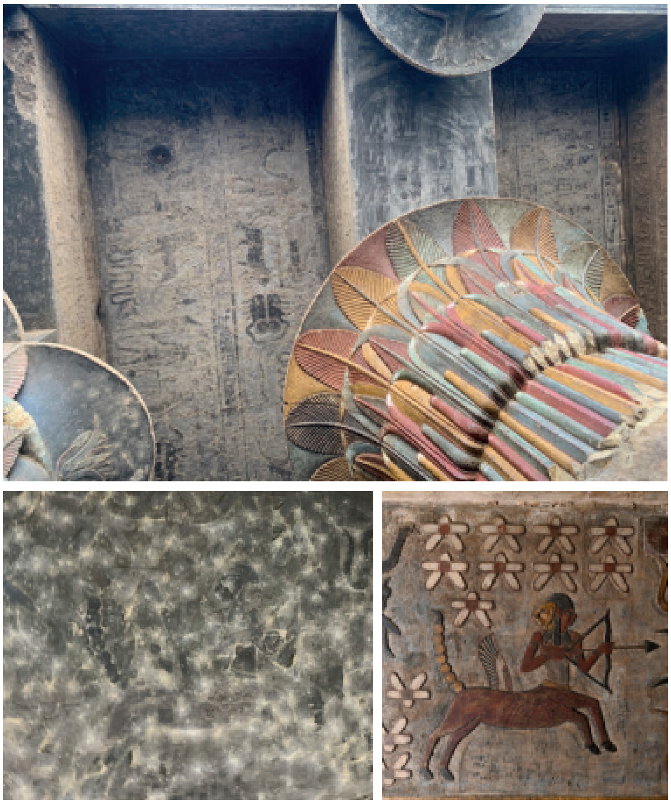
One of the most remarkable decorations in the entrance hall of the temple of Khnum in Esna is the representation of the zodiac, the primary subject of a ceiling bay near its southern end. The zodiac system was devised by the Babylonians in Mesopotamia around 4,000 years ago and was likely introduced to Egypt by the Ptolemies toward the end of the fourth century B.C. It soon became popular among Egyptians, who decorated their tombs with zodiac signs and inscribed their horoscopes on ostracons, broken pottery pieces used as writing surfaces. "In the Ptolemaic and Roman periods, the twelve constellations of the zodiac would have been depicted on the ceilings in every temple in Egypt," Leitz says. "It was nearly the only non-Egyptian decorative element in these temples." The zodiac ceiling bay in the pronaos is one of only three complete sets of astrological signs preserved from Egyptian temples.

The 12 zodiac signs are carved in two groups of six, which are separated by a hieroglyphic inscription. Divine representations of Mars, Jupiter, and Saturn—three of the seven planets known in antiquity—are depicted alongside specific signs of the zodiac. These associations between planets and zodiac signs are examples of an astrological concept known as exaltation, or *hypsoma* in Greek, which holds that the planets' connections with particular zodiac signs have an impact on the human condition. Ancient astrologers believed that the planet Mars had its exaltation in Capricorn. Thus, the deity personifying Mars is depicted as a war god standing atop the sign for the fish-tailed goat Capricorn.

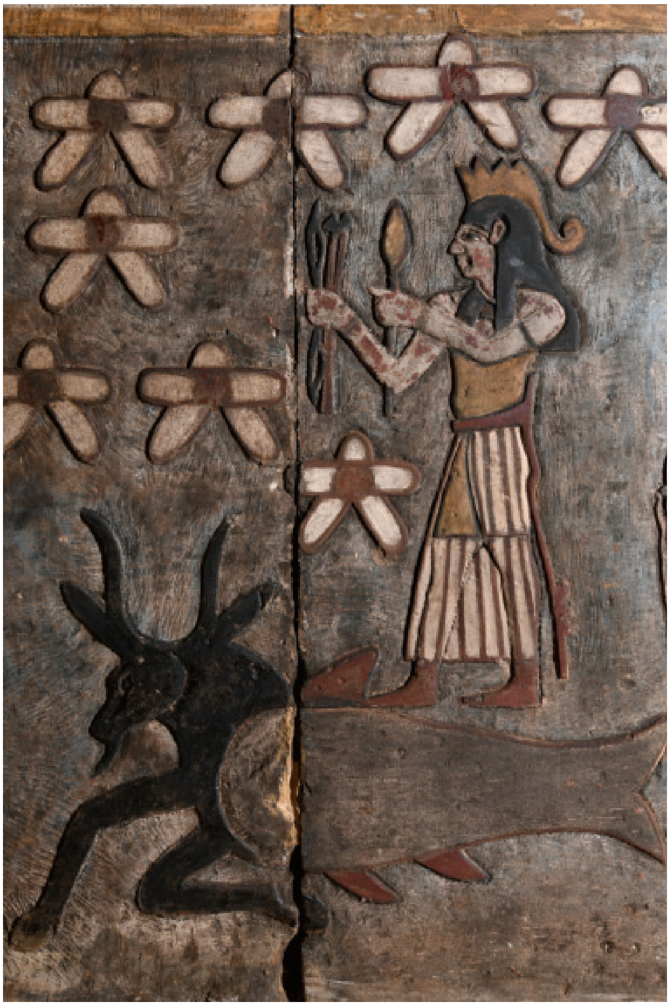
A mystifying aspect of the zodiac ceiling bay is its depiction of six of the Seven Arrows, messengers of female deities such as Sekhmet, the goddess of disease. "Depictions of the Arrows are not common, though we have dozens of attestations of them in Greco-Roman sources," says Leitz. "They were mostly considered dangerous. But Sekhmet, for example, also had healing effects, so the Arrows could perhaps have had a beneficial role." Conservators have revealed previously obscured inscriptions that contain the Arrows' names. An inscription above the First and Second Arrows, for instance, dubs the second messenger "who steals the heart, who loves one." It is unclear what astronomical significance, if any, the Arrows had in ancient Egypt.

CONSERVATORS WORKING at Esna's temple of Khnum continue to clean the scenes on the pronaos' inner walls as well as the columns along its facade. "Now this vivid decoration can be studied in combination with the temple's architectural layout, something that could not have been attempted until recently," El-Leithy says. Leitz and von Recklinghausen suspect there are many more connections between the positioning of texts and images that have yet to be discovered. "I've been quite astonished at the numerous cases of these interactions," says Leitz. "I didn't expect it, and, at the moment, we don't know whether this might have been repeated in any other temple in Egypt."

The researchers have, however, found precise parallels between the myriad texts and images within the pronaos and those in other temples. These connections provide insight into how the priests of Esna's temple of Khnum devised and executed the overarching plan for the decoration of the hall. Parts of the text on the exterior walls, for example, also appear in the Ptolemaic temple of Horus in the Upper Egyptian city of Edfu. This is evidence, von Recklinghausen says, that priests selected and adapted texts and representations of gods, stars, and other religious and astronomical iconography from a shared source that is now lost. "They seem to have had master pattern books with illustrations, vignettes, and all the texts, but the priests were able to use them very freely," he says. "These were texts you could use, but you didn't need to stick to them." It has taken six years for the team led by Leitz and El-Leithy to clean the temple of Khnum's extraordinary entrance hall. Throughout the process, they have recovered a dazzling array of images depicting different facets of Egyptian theology. Just two of the pronaos' walls and the six columns lining its facade remain to be cleaned, which Leitz estimates will require about a year and a half. It remains to be seen what marvels lie hidden beneath the centuries of soot. ■



The ceiling is also covered with carved images of the 12 signs of the zodiac (top), which were obscured by soot before the conservation process. One of the zodiac signs to emerge was Sagittarius, shown before (left) and after (right) cleaning.



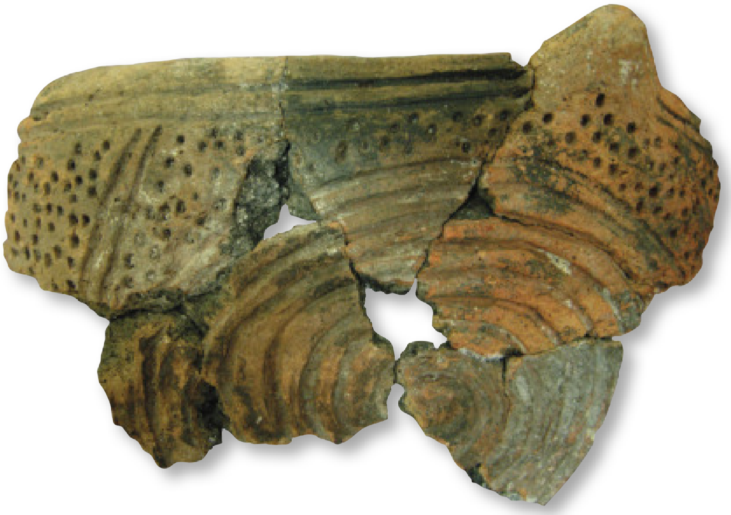
An image of a weapon-wielding war god representing the planet Mars stands atop the fish-tailed goat Capricorn.

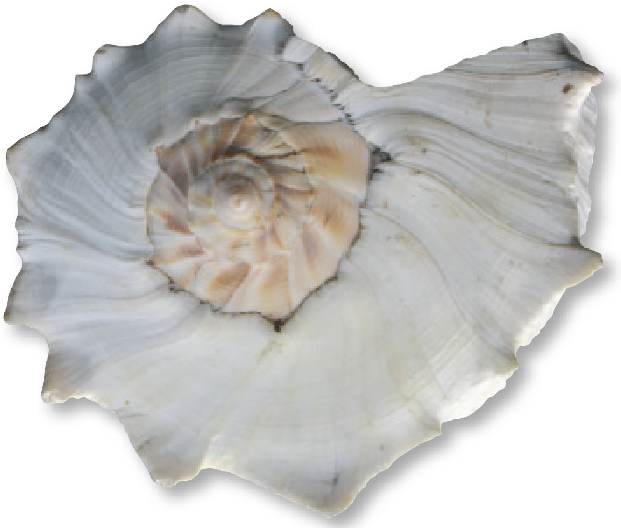
Benjamin Leonard *is a senior editor at* ARCHAEOLOGY. To see more images from the temple, go to archaeology.org/esna.

THE SHELL SEEKERS

How hunter-gatherers in northern Florida facing an uncertain future revived a powerful symbol of their past

By Eric A. Powell

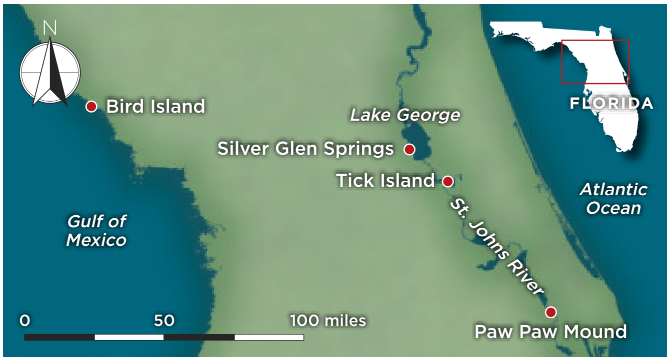




Silver Glen Springs flows into northern Florida's Lake George. In the Archaic period (ca. 7500–1500 B.C.), hunter-gatherers constructed massive shell mounds along the stream connecting them. Excavations at sites known as the Silver Glen complex have yielded examples of Tick Island Incised pottery (above left), a rare type of ceramic decorated with left-opening spirals that may have been meant to evoke the spiral (above right) of the lightning whelk shell.

Hunter-gatherers thrived in Florida for more than eight millennia before they began to make pottery around 2600 B.C., during the Late Archaic period. This invention seems to have dramatically changed their daily and ritual lives. These people, who harvested shellfish in enormous quantities, had participated in long-distance trading networks that brought them goods such as stone beads from Mississippi and ornaments called bannerstones from Georgia. Such objects were often buried with high-status members of society, who likely controlled the trade networks. But, with the advent of pottery, people in northern Florida stopped importing such prestigious objects. "Unlike stone beads or other exotic items, pottery was accessible to anyone who could dig clay," says archaeologist Zackary Gilmore of Rollins College. In northern Florida during the Late Archaic period (ca. 3700–1500 B.C.), people used Spanish moss as temper—a substance added to clay to prevent it from breaking when fired—to make ceramics, some of which appear orange in color. They decorated these vessels with abstract motifs consisting of multiple incised straight lines. Many of the geometric patterns they created include designs such as chevrons and triangles, which their ancestors had carved on bone, antler, and wooden objects.

These early ceramics, now referred to simply as Orange pottery, were first identified in the 1860s by antiquarians digging at Late Archaic sites along the St. Johns River in northern Florida. While excavating a shell mound on the river's Tick Island in the 1890s, archaeologist C.B. Moore took note of a very rare type of Orange pottery. Moore unearthed a handful of sherds that were decorated with curved incisions in the shape of left-opening, or sinistral, spirals, surrounded by small round depressions. These were a stark departure from the linear incisions found on the vast majority of decorated Late Archaic pottery in northern Florida. "The design is wildly different from that on any Orange pottery that came before it," says Gilmore. "It doesn't seem to have any stylistic precedents." In later decades, archaeologists would discover more examples of these spiral-decorated pots, called Tick Island Incised pottery, but never in great numbers. They determined that this type of ceramic was only present in settlements on the St. Johns River



as far south as the site of Paw Paw Mound and in a few sites on the Gulf Coast, including Bird Island. The question of why some Late Archaic people made pottery decorated with such an anomalous motif gnawed at generations of archaeologists who study Florida's Indigenous cultures.

In the 1960s, archaeologist James Ford of the University of Florida noticed similarities between the spirals on Tick Island Incised pottery and scroll-like motifs that decorated ceramics made during roughly the same period by people living on the coast of Colombia, some 1,800 miles to the south. Ford found the decorations so similar that he speculated they could be evidence that people had migrated directly from South America to Florida sometime in the second millennium B.C., bringing pots decorated with scroll symbols with them.

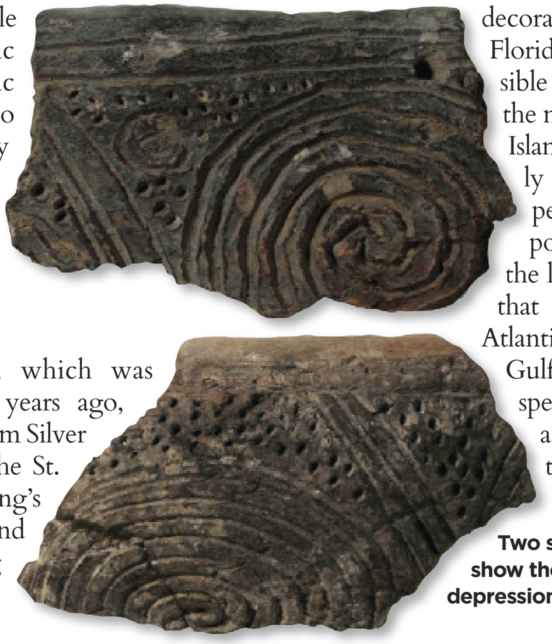
In recent years, archaeologists led by Kenneth Sassaman of the University of Florida and Asa Randall of the University of Oklahoma have conducted excavations at a series of sites in the St. Johns River Valley that make up what is known as the Silver Glen complex. There, they have unearthed the largest collection of Tick Island Incised pottery to have been found thus far. This discovery prompted Gilmore to subject examples of the spiral-decorated pottery to a fresh battery of scientific tests. Among his findings is that north Florida hunter-gatherers created the left-opening spiral motif during a volatile period in the history of the American Southeast. He believes it's possible that this design was a way Late Archaic peoples invoked the ancient symbolic power of a unique marine animal to help them weather challenges posed by dramatic social changes. "During times of cultural upheaval," says Gilmore, "people often turn to symbols of stability and long-term history that their ancestors relied on in the past."

The Silver Glen complex, which was occupied as early as 9,000 years ago, straddles a stream that flows from Silver Glen Springs into Lake George, in the St. Johns River Valley. Today, the spring's bright blue waters draw swimmers and boaters from across Florida. Beginning in the Early Archaic period (ca. 7500–5000 B.C.), the spring attracted hunter-gatherers who harvested freshwater clams and feasted on the stream's banks, creating enormous shell mounds. Like most shell mound sites in interior Florida, this one was intensively mined for road construction material in the twentieth century. "There's very little visible today," says Randall, "but there are extensive subsurface remains, and we were able to reconstruct what the site once looked like." From 2007 to 2022, excavations led by Sassaman and Randall in the Silver Glen complex revealed that two massive mounds once rose on either side of the stream. Upstream of the mounds, the team found hundreds of pits where people once roasted clams to provision feasts they held on the shell mounds. "Some of these pits are massive," says Gilmore. "They could hold a Volkswagen Beetle."

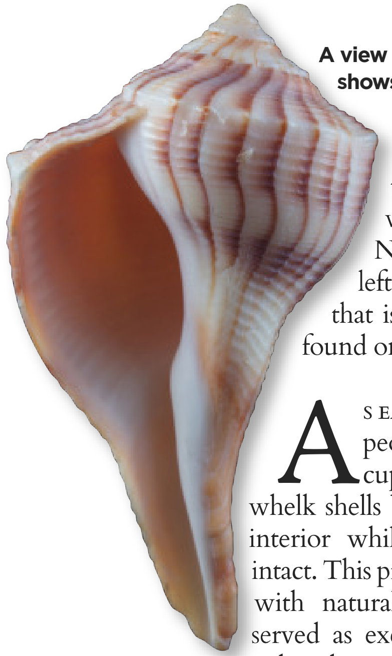
Among the thousands of examples of pottery the team unearthed in the Silver Glen complex, they identified sherds from 19 Tick Island Incised pots. Gilmore included these examples in his subsequent study of 52 spiral-decorated vessels from sites across northern Florida. Pottery is notoriously difficult to radiocarbon date because it often doesn't contain any organic material. But Gilmore was able to isolate Spanish moss temper from two Tick Island Incised pots found in the Silver Glen complex that he could use to date them to around 1850 B.C. Late Archaic people stopped making Orange pottery after about 1600 B.C., meaning that Tick Island Incised pottery was used for only around 200 years.

Gilmore also analyzed the chemical properties of the clay people employed to make the vessels. "I wanted to figure out if Tick Island Incised really was this exotic thing that was adopted from somewhere outside Florida," he says. Gilmore's analysis showed that, in each case, the clay was local to northern Florida. "Compositionally, Tick Island pottery is the same as other Orange pottery," he says. This finding suggested the pottery had not been brought from Colombia or another distant place. "It was local," says Gilmore, "just dramatically different aesthetically from the vast majority of Orange pottery."

Once Gilmore determined that the spiral-decorated pottery was local to northern Florida, he began looking for other possible explanations for the appearance of the motif. He and Randall noted that Tick Island Incised pottery was found in roughly the same region of Florida where people who lived before the advent of pottery used cups made from shells of the lightning whelk. A large marine snail that lives in the waters of the southern Atlantic coast of the United States and the Gulf of Mexico, the lightning whelk's species name, *Busycon sinistrum*, refers to an unusual property of its shell. When traced from the center of the shell's



Two sherds of Tick Island Incised pottery show the left-opening spirals and small depressions characteristic of this type of ceramic.



A view of a lightning whelk shell shows its unique left-opening spiral.

whorl, its spire turns counterclockwise. The lightning whelk is the only shellfish in North America to have such a left-opening configuration—one that is identical to the spiral motif found on Tick Island Incised pottery.

As early as 5000 B.C., the Archaic people of northern Florida made cups or dippers from lightning whelk shells by chipping away at a shell's interior while leaving the outer whorl intact. This produced watertight containers with natural handles that would have served as excellent drinking vessels. But archaeologists haven't found these cups in great numbers. "They don't show up enough to suggest they were in everyday use," says Gilmore. "These were special-use vessels—perhaps they were used to make ritual substances." After the introduction of pottery, people appear to have abruptly stopped making these lightning whelk cups.

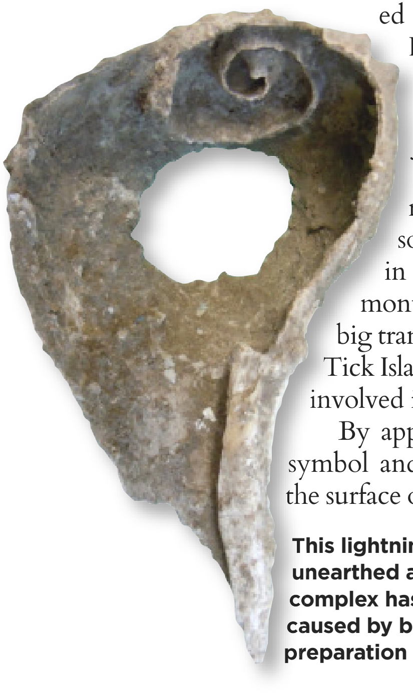
Although lightning whelk cups were presumably supplanted by ceramic vessels, the left-opening configuration of the lightning whelk shell seems to have held symbolic significance that was never forgotten. Some 2,500 years after lightning whelk cups fell out of use during the Late Archaic period, people in the American Southeast began to make the cups again to consume a ritual substance known as the Black Drink, made from the leaves of plants such as yaupon holly. (See Artifact, November/December 2012.) Even today, peoples of the Southeast associate counterclockwise, or sinistral, motion in dances and other rituals with renewal, regeneration, and the passage of time. Lightning whelk shells are also considered a powerful symbol of these concepts.

Gilmore hypothesizes that the sinistral motif on Tick Island Incised pottery was a direct evocation of the lightning whelk cups that had been used before the invention of pottery. He notes that, around the time this motif appeared, momentous changes were beginning to impact the lives of Late Archaic hunter-gatherers across much of the Southeast. Around 1800 B.C. in Georgia, where people had deep trading and cultural ties to people in Florida, hunter-gatherers abandoned many of the major sites where they had assembled for millennia and dispersed into smaller communities. "Something was happening around this time," says Randall. "People were dramatically reorganizing how they interacted." Gilmore believes that social and political events of some sort precipitated the radical changes that were taking place. There is no conclusive evidence for large-scale environmental change during this time, he says, so that was likely not a factor. "This is a point when sea levels and wetlands are stabilizing," Gilmore says. "What people saw in the Late Archaic along the St. Johns River is what we see today."

Around the same time that many sites across the Southeast were being abandoned, the people living in the Silver Glen complex drastically altered the layout of their community. They extended the large shell mound that had run along the stream's south bank for hundreds of years, transforming it into an enormous U-shaped structure. Randall and Sassaman suspect that the mound's new configuration might have been spurred by the arrival of new people as populations shifted. Or, perhaps, it reflected the division of the people of the Silver Glen complex into two different factions.

In the original section of the U-shaped mound, the team discovered Orange pottery decorated with ornate geometric designs, while in the newer section they found mostly smaller, undecorated examples. Interestingly, sherds of Tick Island Incised pottery were present in both sections of the mound. "Maybe Tick Island pottery was used as a means to unify two distinct groups," says Gilmore. At the same time that people were transforming the mound, as part of a ritual, they covered the hundreds of large roasting pits that they had used to prepare feasts with a massive layer of pristine white shells that included several sherds of Tick Island Incised pottery. "The industrial-scale production of shellfish just stops," says Gilmore. "All around the region there's a lot of social change reflected in how people use these monumental spaces. It's a big transition and it seems like Tick Island pottery is intimately involved in it."

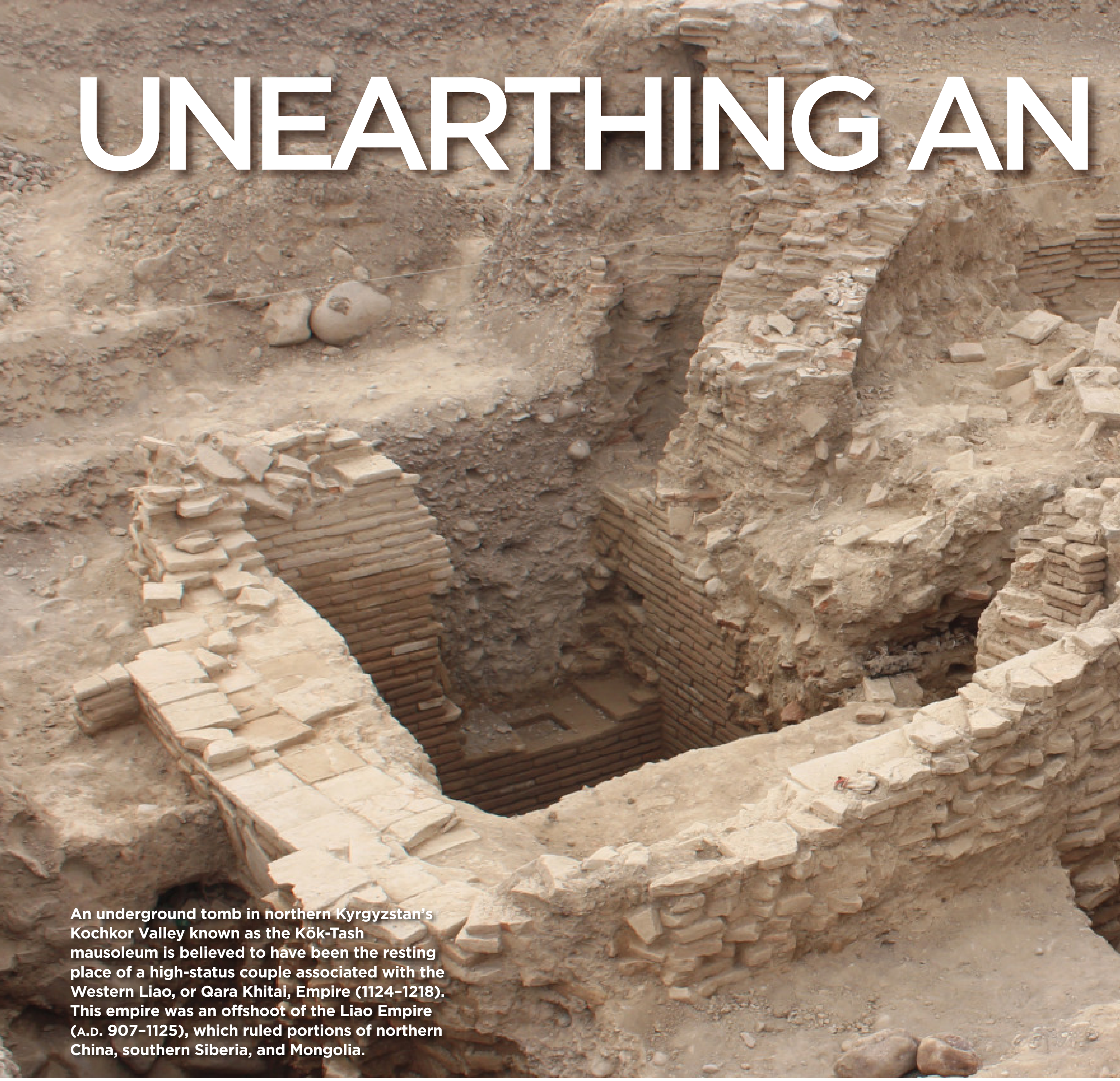
By appropriating an ancient symbol and boldly placing it on the surface of their vessels, the Late Archaic potters who fashioned Tick Island Incised ceramics may have defied stylistic conventions for a purpose that went far beyond aesthetics. "When there was upheaval and change," says Gilmore, "people turned to this sinistral spiral symbol that has thousands of years of history." Perhaps in resuscitating a symbol that had been powerful during the days of their ancestors, Late Archaic people were attempting to exert a measure of control over their futures. With each left-opening swirl they incised on a pot, they may have helped to bring some measure of stability to the turbulent world around them. ■



This lightning whelk shell cup unearthed at the Silver Glen complex has a hole at the center caused by burning, possibly during preparation of a ritual substance.

Eric A. Powell *is deputy editor at* Archaeology.

UNEARTHING AN



An underground tomb in northern Kyrgyzstan's Kochkor Valley known as the Kök-Tash mausoleum is believed to have been the resting place of a high-status couple associated with the Western Liao, or Qara Khitai, Empire (1124–1218). This empire was an offshoot of the Liao Empire (A.D. 907–1125), which ruled portions of northern China, southern Siberia, and Mongolia.

In the year 1124, an ambitious prince in northern China named Yelü Dashi faced a pivotal decision—stay and make a final stand with his people, who faced near-certain defeat, or head for the hinterlands in search of new prospects. Just a decade earlier, Dashi had been a junior member of the Yelü royal clan of the Khitan, the nomadic group that ruled the Liao Empire. The empire had been founded in A.D. 907 by Abaoji, a direct ancestor of Dashi's. Abaoji united the Khitan tribes, who were based in eastern Mongolia and parts of China, and rallied them to conquer much of northern Asia, from the border of the Korean Peninsula across portions of northern China, southern Siberia, and Mongolia. This territory included both traditionally Chinese areas that were home to settled farmers and great stretches of steppe where other nomadic tribes roamed. The Khitan maintained their nomadic lifestyle, and their emperors and courts moved among five different capitals. They established a hybrid style of government: An administration in the south, staffed by civil servants, many of them Chinese, was responsible for the largely Chinese parts of the empire, and a northern administration tended to the nomadic tribes of the steppe.

After initially clashing with their southern neighbors, the Chinese Song Dynasty (A.D. 960–1279), in 1005 the Liao made peace with the Song on terms that left a contested border

ELUSIVE EMPIRE

Archaeologists have discovered rare evidence of an enlightened medieval dynasty that ruled much of Central Asia

By Daniel Weiss

region in Liao hands. The Song also agreed to make substantial annual payments to the Liao and to recognize the Liao emperor as a Son of Heaven, on par with the Song emperor. Wrangling the nomadic tribes in the north, however, grew increasingly challenging. These tribes were compelled to pay taxes to the Liao, a burden that became particularly onerous in the early twelfth century as the climate grew harsher. The Jurchens, a north Manchurian tribe who were expected to procure special gyrfalcons that the Liao emperor used for hunting, grew so frustrated with these demands that they rebelled in 1114. The next year, they founded the Jin Dynasty (1115–1234) and began taking over Liao lands in Manchuria. Around this time, Dashi was launching his career. He had pursued an education typical of the Khitan elite, mastering horse riding and archery as well as the Khitan and Chinese scripts. He had passed all the Chinese imperial examinations and, just as the Liao Empire began to fall apart, he took on a series of administrative and military roles, largely along the Liao-Song border.

The failure of the Liao emperor Tianzuo (reigned 1101–1125) to fend off the Jin led to self-destructive infighting. Dashi helped install a rival Liao emperor, Yelü Chun, and became a successful military leader in his camp. When Chun died after a few months, Dashi rejoined Tianzuo with several thousand troops under his command. Dashi was then captured by the Jin

Coins believed to have been minted by the Qara Khitai are among the small number of objects that scholars can confidently associate with the empire.

and helped them lead an attack on Tianzuo before escaping and returning once again to Tianzuo's side. Perhaps recognizing that the Liao were doomed to be overrun by the Jin—or fearing that Tianzuo would exact retribution for his repeated betrayals—Dashi made the fateful decision, in 1124, to break with the emperor for good, declare himself king, and head west with a small band of followers. Although it could hardly have been apparent at the time, this marked the beginning of the Western Liao, or Qara Khitai, Empire, which would go on to rule a swath of Central Asia for nearly a century until being overrun by Genghis Khan and the Mongols in 1218.

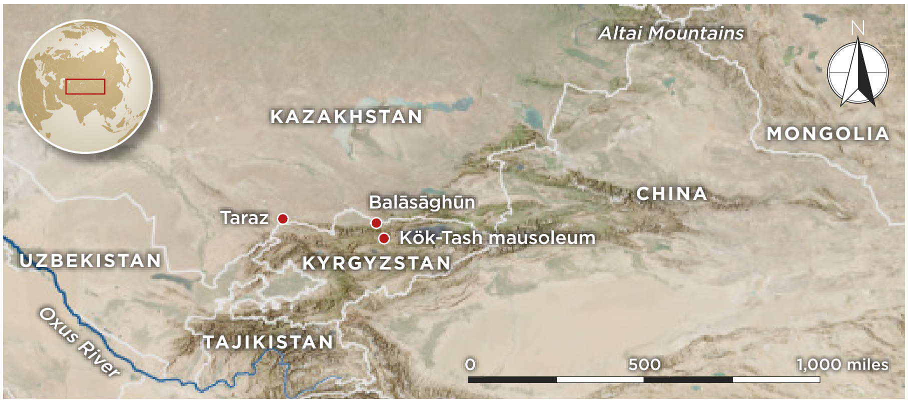
Over the next decade, Dashi ventured into a region that was occupied by a fragmentary patchwork of kingdoms whose rivalries he could exploit. These included the Buddhist Uighurs of Xinjiang, in far western China, and the Muslim Eastern Qarakhanids of south Xinjiang, Kyrgyzstan, and parts of southern Kazakhstan. Dashi pushed west, all the while nursing the ultimate aim of returning to take vengeance on the Jin—who completed their conquest of the Liao in 1125 and took a good portion of territory from the Song in 1127. In 1131, Dashi was enthroned by his followers as both a Chinese emperor and as *gürkhan*, a new title meaning "universal khan."

In addition to their military prowess, Dashi's contingent profited from their prestigious association with China, as well as their nomadic roots and embrace of local customs. "Dashi knows the Chinese writing system and he has all these trappings of the emperor—for him, China was a good brand," says Michal Biran of the Hebrew University of Jerusalem, a historian who specializes in the Qara Khitai. "But the Khitans also shared a nomadic culture with most of the rulers of Central Asia. They were strangers, but they were not too foreign." After helping the Eastern Qarakhanid khan fend off enemy tribes, in 1134 Dashi easily took over the khan's capital of Balāsāghūn in present-day Kyrgyzstan and made it the Qara Khitai capital. Dashi's greatest triumph came in 1141 when he extended his realm to include the territory of the Western Qarakhanids, encompassing much of Uzbekistan, by defeating their overlords, the powerful Seljuk Empire, which was based in Baghdad. By the time Dashi died in 1143, his domain stretched from the Oxus River to the Altai Mountains, covering most of modern Xinjiang, Kyrgyzstan, Uzbekistan, Tajikistan, southern Kazakhstan, and western Mongolia.

The Qara Khitai ruled over a multiethnic population composed mainly of Turks, Iranians, Mongols, and a smattering of Han Chinese. Khitans were a small minority of this population. Most of the populace was sedentary and Muslim, though there was a substantial contingent of nomads, as well as Buddhist, Christian, and Jewish communities. The Qara Khitai practiced Buddhism but were tolerant of their vassals' religions and were, in turn, accepted as overlords by their largely Muslim subjects. "The time of Qara Khitai rule was a time of stability and prosperity," says Biran. "People said, 'Okay, we have a good life, we still have Muslim rulers, so who cares if the overlords are infidels?' You can even find in Muslim lawbooks that they praise the Qara Khitai. Usually, you don't praise the infidel overlords, you want to replace them."

In comparison with the Liao Empire, the Qara Khitai Empire was highly decentralized. Dashi divided the realm into two domains. A central territory organized around the capital was directly ruled by the gürkhan. Farther out, the subject kingdoms—the Uighurs and Eastern Qarakhanids to the east and the Western Qarakhanids and Iranian Khwārazm to the west—as well as various subject tribes were all ruled with a relatively light hand. They were required to pay annual taxes, send troops when needed, and recognize the gürkhan's authority by carrying his official seals and tablets of authority, but retained a degree of autonomy. Representatives of the gürkhan collected tribute from the subject kingdoms and tribes, but Dashi's troops were not embedded with them.

THE HISTORY OF THE Qara Khitai Empire is known largely from a small number of written works, primarily the *Liao Shi*, the official history of the Liao Empire, which was compiled under the Chinese Yuan Dynasty (1279–1368). Other Chinese sources also mention the Qara Khitai, including the histories of the Song and Jin Dynasties, as do the works of several twelfth- and thirteenth-century Muslim writers. Notably, the Qara Khitai is the only dynasty that did not rule any land traditionally seen as part of China that is considered a Chinese dynasty by Chinese historians.



The archaeological record of the Qara Khitai is even sparser than the written record. Although a series of gürkhans ruled from Balāsāghūn for 75 years after Dashi's death, until recently, just a few coins and other objects—but not a single structure—had been indisputably associated with

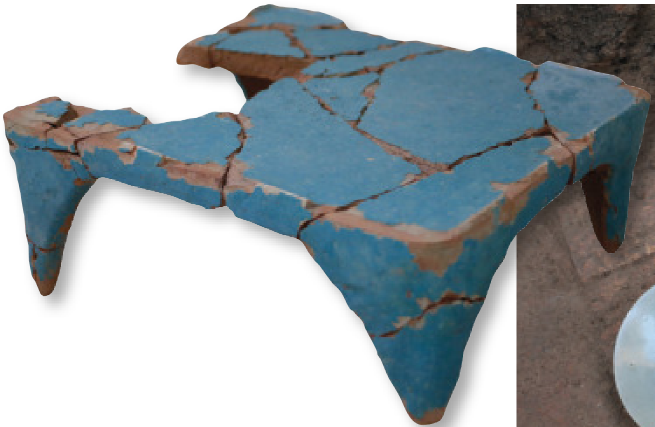
The floor of the Kök-Tash mausoleum was paved with two layers of brick tiles, one of several features suggesting it was a Qara Khitai burial.

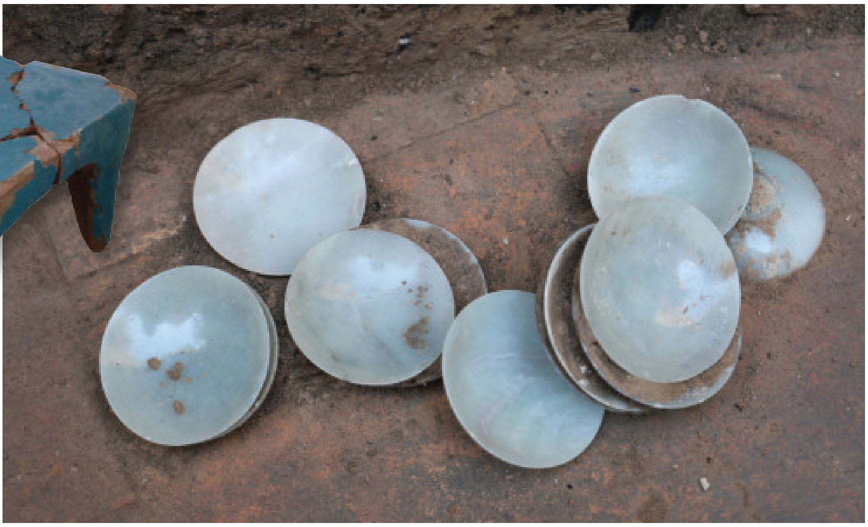
the empire. In the 1930s and 1940s, archaeologist Alexander Bernshtam identified a number of structures and burials at sites in Kyrgyzstan as belonging to the Qara Khitai based on the presence of Chinese artifacts. However, later archaeologists determined that Bernshtam's discoveries were either from a different period or, in the case of the burials, had features inconsistent with the many Liao tombs that have been excavated in China.

For the next eight decades, little progress was made in identifying evidence of the Qara Khitai. Beginning in 2019, Michael Shenkar, an archaeologist at the Hebrew University of Jerusalem who specializes in the pre-Islamic period in Central Asia, taught a class on Eurasian nomads with Biran. Shenkar was surprised to learn of the near-total absence of Qara Khitai material in the archaeological record and conferred with archaeologist Valerii Kolchenko of the Kyrgyz National Academy of Sciences. "Valerii told me, 'We don't really have anything,'" says Shenkar, "'but two of our colleagues recently excavated a very strange underground mausoleum which probably belonged to this period. Perhaps you should take a closer look.'" The tomb, now known as the Kök-Tash mausoleum, was first revealed in 1998 during construction near the village of Kum-Döbö in northern Kyrgyzstan's Kochkor Valley. After unauthorized excavations in 2010 and 2011, followed by looting in 2015, damaged the tomb, a team from Kyrgyz-Turkish Manas University led by archaeologists Kubatbek Tabaldiev and Kunbolot Akmatov carried out rescue excavations in 2017 and 2018. They unearthed a structure that differs in many ways from those typically found in the area. The mausoleum consists of two adjacent chambers connected by an arched passage. Inside the entrance, there is a rectangular antechamber measuring eight by 13 feet. Beyond it lies a larger domed burial chamber measuring 21 feet square that has a coffin made of baked brick built on top of the floor. Each chamber's floor is paved with two layers of brick tiles.

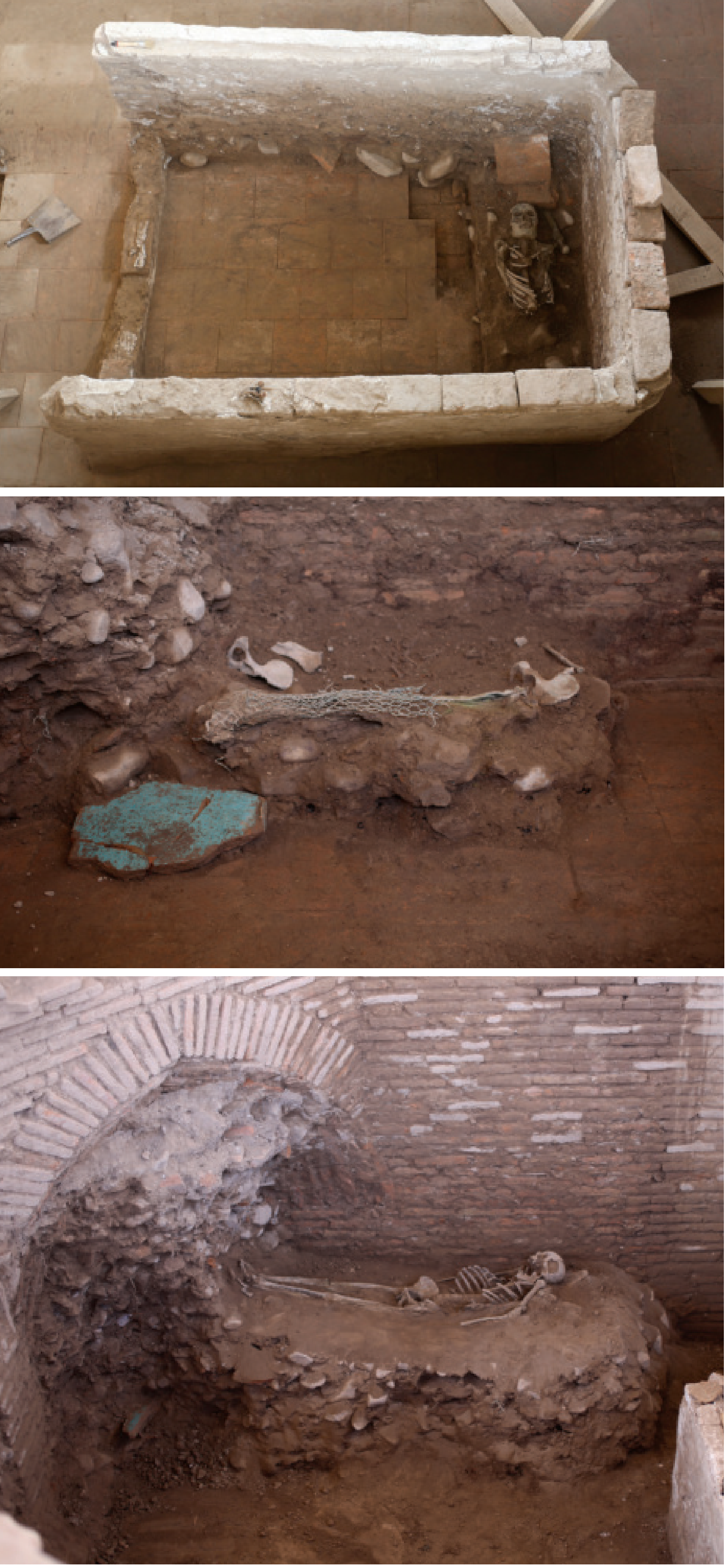
The tomb held the remains of three people, who had all been moved from their original resting places at some point in time. The upper portion of a woman's skeleton was discovered in the coffin. Her skin was partially preserved and covered with green powder. Bones from the lower portion of her skeleton lay a few feet away on the floor. Curiously, a thighbone and shinbone were each wrapped in bronze wire mesh. Researchers concluded that the upper portion of the woman's skeleton had originally been wrapped in the same mesh, which had oxidized to produce the green powder. Atop the lower portion of the woman's skeleton was a man's skeleton, also covered in green powder, suggesting that it, too, had once been wrapped in bronze mesh. Archaeologists surmise that the man and woman were likely a married couple who were originally buried together in the coffin. The skull of an adolescent, which has been radiocarbon dated to the late thirteenth century, was discovered in the soil around three feet above the floor of the square chamber, and additional bones belonging to this skeleton were found outside the tomb, near its entrance. Researchers believe the adolescent's remains were deposited at a later date than the couple's, which have not yet been radiocarbon dated.

A range of material including glass, metal, and stone objects found at the level of the adolescent's skull or higher seems to belong to a period after the couple were buried. A few finds from the tomb's floor, however, appear to be the couple's





A low table (above) pieced together by archaeologists from fragments of blue glazed pottery and a dozen jade plates (right) were buried along with the Qara Khitai couple.



The upper portion of a woman's skeleton (top) was discovered in a coffin in the Kök-Tash mausoleum. Archaeologists found bones from the lower portion of her skeleton (middle), some wrapped in bronze wire mesh, a few feet away. A man's skeleton (above) was unearthed atop the woman's bones.

grave goods. These include 12 small jade plates found on the floor in stacks, just inside the entrance to the square burial chamber. There were also fragments of blue glazed pottery that the excavators pieced together to reassemble a low, four-legged table. Numerous other blue glazed pottery fragments indicate there were two such tables in the tomb. The archaeologists named the tomb after these colorful fragments; *kök-tash* means "blue stone" in Kyrgyz.

Tabaldiev and Akmatov initially concluded that the Kök-Tash mausoleum was a Muslim tomb dating to the eleventh to thirteenth century. According to Biran, scholars in the area have a tendency to assume that any burials dating to this period belonged to the Muslim Qarakhanids, the Qara Khitai's subjects. "Whenever something unusual is found, people will say, 'This is a very bizarre Muslim building,'" she says. "But it's not always Muslim. Sometimes it's completely non-Muslim—and sometimes it actually belongs to the Qara Khitai." Biran and Shenkar, after doing additional research in cooperation with Tabaldiev, Akmatov, and Kolchenko, have come to believe this is the case with the Kök-Tash mausoleum.

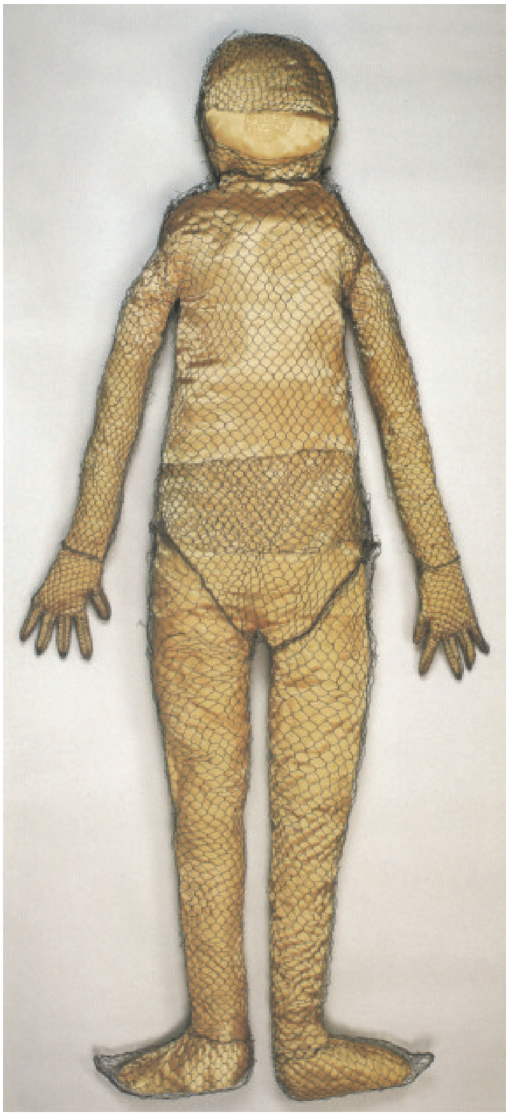
When Shenkar began looking into the tomb, it was readily apparent that a number of its features were inconsistent with Muslim funerary practices. These include the burial of a couple together, the fact that they were not interred in the earth, and the inclusion of grave goods. Underground tombs are also extremely rare in medieval Central Asia, and none is known to have a two-chambered structure or floors with two layers of brick tile. These attributes are, however, routinely found in Liao tombs that have been excavated in China—as is the tomb's most salient feature, the bronze mesh used to encase the deceased. "I saw the wire mesh, the metal wire costumes, which is an exclusively Liao burial custom," says Shenkar. "It was immediately clear to me that this was an underground Qara Khitai mausoleum." It's not known why the Khitan buried their dead in wire mesh, though Shenkar suspects it was an attempt to preserve the body.

The layout of the Kök-Tash mausoleum, with an antechamber connected by a passageway to a larger burial chamber with a domed ceiling, is one of the most common types of Liao burial, known as a house-shaped tomb. Tombs belonging to Liao aristocrats often include side rooms and individuals buried in mesh suits fashioned of silver or gold. The Kök-Tash mausoleum's absence of side rooms and the fact that the couple were buried in bronze suits has led researchers to conclude that the pair was likely of a slightly lower status. The tomb is located within the territory that was directly ruled by the Qara Khitai but was around a day's ride on horseback over a mountain pass from the capital, Balāsāghūn, further suggesting the couple were somewhat peripheral to the empire's power structure. Archaeologists have identified a city where the couple may have lived a few miles from the tomb, near the modern village of Kum-Döbö. "This tomb certainly belongs to important, high-status people," says Shenkar. "Perhaps the governor of this city—we don't know."

Researchers believe the deceased may have been Khitans or "Khitanized" Han Chinese who were part of the Qara Khitai elite. The grave goods found in the mausoleum are similar to those in Liao tombs in China, especially those of Liao Han Chinese. The tables made of blue glazed ceramics—a material known to have been produced locally in great quantities, particularly in the area of Samarkand and Bukhara in present-day Uzbekistan—appear to be a Qara Khitai version of offering tables found in such Liao tombs. The jade plates were likely placed on the tables to provide the deceased with a final banquet. Jade was a local resource, mined in the Khotan region, now in western China, which was part of Eastern Qarakhanid territory. "They used local materials to re-create a symbolic system from the Liao Empire," says Biran. "They managed to retain their identity in this new environment but with local modifications, just as they did with their administration."

After Dashi died, the Qara Khitai Empire was ruled, in turn, by his widow, Xiao Tabuyan, their son Yelü Yilie, and their daughter Yelü Pusuwan. The empire's final gürkhan, Yelü Zhilugu, Yilie's son, was installed in 1178 by Pusuwan's father-in-law, who had her executed after catching her in an affair with his younger son. During Zhilugu's reign, threats from both ends of the empire grew. Qara Khitai troops were embroiled in a protracted struggle with the Khwārazm to the west, who finally submitted to the gürkhan around 1194. Soon after, the Khwārazm called upon the Qara Khitai to help fend off a threat from even farther to the west—the Ghūrids, an Iranian dynasty based in central Afghanistan. (See "Minaret in the Mountains," September/October 2019.) Once the Ghūrids had been repelled, the newly empowered Khwārazm chafed at the Qara Khitai's demands for tribute. Unrest intensified in the east as well. It worsened after Genghis Khan (reigned 1206–1227) became leader of the Mongols, causing many nomadic refugees from Mongolia to flee into Qara Khitai territory, even as the Qara Khitai's eastern vassals began defecting to the Mongols. One of these refugees was a prince named Güchülüg from the Naiman tribe. A fierce enemy of Genghis, Güchülüg was warmly welcomed by Zhilugu, who gave him his daughter in marriage.

With the gürkhan's permission, Güchülüg gathered an army of Mongolian refugees and Qara Khitai troops. Instead of attacking the Mongols and their allies, however, he marched on Balāsāghūn, Zhilugu's capital. Zhilugu fended off the attack at first, but in 1211 Güchülüg overthrew the gürkhan. Güchülüg attempted to install himself as gürkhan, but writers from the time and later deny him the title. This is likely due to his non-Khitan origin and his radical departures from Qara Khitai tradition, including alienating the population through rampant plunder and interfering with people's practice of their religion. Güchülüg amassed enough power, however, to attract the attention of Genghis, who couldn't abide his erstwhile Mongolian rival ruling in Central Asia. Genghis sent a general to track down Güchülüg, who was captured in 1218 in the mountains of present-day Tajikistan. By 1220, Genghis' troops had also defeated the Khwārazm, solidifying control of the lands of the former Qara Khitai Empire.



This silver mesh burial suit was discovered in Inner Mongolia in the Liao Empire tomb of a woman known as the Princess of Chen.

Having confidently identified one Qara Khitai tomb, Biran and Shenkar hope to find more—possibly by reexamining tombs that were excavated in the past. One particularly strong candidate is an underground tomb that was accidentally discovered in 1951 by a gardener in Taraz in southern Kazakhstan, around 200 miles west of Balāsāghūn. The tomb was not excavated in a controlled manner, but records held by the Taraz Regional Museum show that it was dated to the thirteenth century based on ceramics found inside. These include a turquoise glazed ceramic box containing cremated remains—a practice contrary to Muslim law—as well as a turquoise glazed ceramic offering table very similar to those found in the Kök-Tash mausoleum. "We don't have the grave itself, we only have the grave goods," says Biran. "But Taraz was a very important city for the Qara Khitai, so it makes sense there would be some elite Qara Khitai tombs there." For now, the discovery of the first structure clearly built by the Qara Khitai has offered scholars a new way of understanding a highly adaptable empire that ruled over a diverse, sprawling realm until both internal and external pressures led to its downfall. ■

Daniel Weiss *is executive editor at* Archaeology.

The Secrets of Porvenir

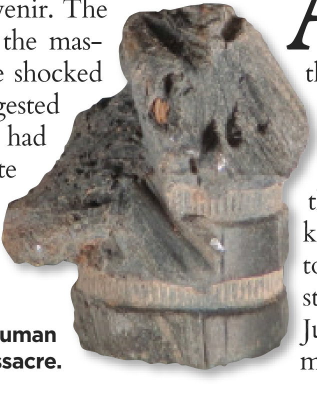
Remembering the victims of a 1918 massacre that shook a Texas border community

By Samir S. Patel

Sometimes all it takes is one small artifact to tell an entire story. In 2015, during a metal detector survey in the Big Bend region of western Texas, archaeologist David Keller found one such object under windblown sediments that had likely protected it in place for around 100 years. "It was a heavy moment," Keller says of his initial examination of the object with a hand lens. He called over the rest of his team to have a look. It was a fragment of a .45-caliber bullet, which later analysis would show was fired from either a Colt M1873 single-action revolver or a Colt M1909 double-action revolver, that had been heavily deformed by impact. That impact had fused the lead projectile with human bone. There had never been any doubt that Keller, then with the Center for Big Bend Studies at Sul Ross State University, and the team were working at a crime scene. "Seeing that particular artifact drove it home in a way that was really visceral," he says. "It shook us up."

The bullet had been fired during the summary execution of 15 unarmed Mexican-American men and boys by Texas Rangers and local Anglo ranchers very early in the morning of January 28, 1918. The artifact's story spills out from that fateful night to a period known in local history as La Matanza (the Massacre) or Hora de Sangre (Hour of Blood), a time when border-related anti-Mexican violence in Texas was widespread.

The bullet is one of dozens of pieces of evidence collected by Keller and his team during their three-day project a decade ago near what was once the hamlet of Porvenir. The finds provided tangible details about how the massacre was carried out. The researchers were shocked to discover that some of the artifacts suggested the possible involvement of shooters no one had expected, a wrinkle that Keller still can't quite get his head around. "We've tried so hard to find an alternative explanation," says Keller, "because I guess we don't want it to be true."



A .45-caliber bullet fragment fused with human bone was found at the site of the Porvenir massacre.

A view of Texas' Big Bend region near the site of the former village of Porvenir. On January 28, 1918, Texas Rangers and local Anglo ranchers executed 15 unarmed Mexican-American men and boys outside the village, which was then burned by a U.S. Army cavalry patrol.

Arlinda Flores Mesa Valencia first learned of Porvenir in 1996, at the funeral of her father, Lonnie Mesa. Her uncle Juan Mesa explained that there was something in the family's past that few knew about: There had been a massacre that her direct ancestors had narrowly escaped—and it had been perpetrated by the Texas Rangers. "The first thing that came out of our mouths was, 'Are you kidding?'" Valencia says. "Texas Rangers are supposed to protect us, not kill us. You must have gotten the story wrong." Valencia learned that her great-uncle Juan Flores, then around 90 years old, still had vivid memories of the massacre.

Some 140 people lived in Porvenir in early 1918, most in small huts called jacales, amid the creosote bush, mesquite, and prickly pear of the Big Bend, close to the banks of the Rio Grande. All but one or two residents were of Mexican descent. They made a living growing corn, pumpkins, and beans, raising cows and goats, and trading with neighboring communities. They shopped at the general stores of area ranches and were friendly with the local U.S. Army cavalry patrols that often rode through.

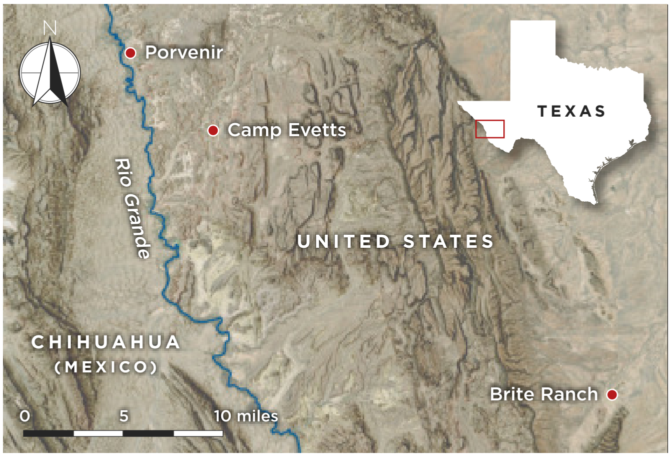
Hispanic people have lived in the American Southwest since the seventeenth century, and the population of Mexicans of Spanish and Indigenous descent was well established throughout the region by the end of the nineteenth century. More had arrived since the Mexican Revolution began in 1910, both to escape the chaos and uncertainty of the conflict, which continued until 1920, and in search of land and economic opportunity. Anti-Mexican sentiment was running high among Anglo ranchers in the Big Bend. The situation was exacerbated by a series of cross-border incidents that had earned the area the nickname the Bloody Bend for incursions by bandits and the often-violent reprisals that followed them.

One of these raids took place on Christmas Day in 1917 at the Brite Ranch, not far from Porvenir. A group of 45 or so Mexican bandits attacked the ranch, resulting in the murders of a postman and his two Mexican passengers, who arrived at the scene while the raid was in progress. It was a brutal attack and an affront to one of the most powerful ranching families in the area. Revenge was most likely on the mind of the leader of the local Company B of the Texas Rangers, Captain James Monroe Fox, whose reputation for violence toward Mexican people was well known.

At around 2 a.m. on January 28, 1918, Fox, along with at least five other Rangers of Company B and four local ranchers, arrived in Porvenir, accompanied by a detachment from Company G of the U.S. Army Eighth Cavalry out of Camp Evetts, around five miles southeast of the hamlet. According to a widely accepted version of the events of that night, the men woke all the town's residents and herded them out of their homes, separating the able-bodied men from everyone else. The soldiers then searched the homes for weapons or contraband from the Brite Ranch raid. They were looking for any evidence that the people of Porvenir were bandit sympathizers.

A photograph taken in the Big Bend region around 1915 shows a Hispanic family in front of a jacal, a type of hut similar to those in which the villagers of Porvenir lived.

The cavalry company left; perhaps the Rangers asked them to so they could question the village men. The Rangers and ranchers took 15 of the men—but not Juan Flores, who was 11 years old—to the shadow of a low, curving bluff about a mile down the road. According to *Bosque Bonito: Violent Times Along the Borderlands During the Mexican Revolution*, a memoir by Robert Keil, a private in the cavalry, the departing soldiers heard a volley of shots. They rushed back to the scene to find the Rangers and ranchers fleeing in haste. "At the foot of the bluff we could see a mass of bodies, but not a single movement," Keil wrote. "It reminded me of a slaughterhouse." All 15 men, unarmed, aged 16 to 64, had been executed: Antonio Castañeda, Longino Flores, Alberto García, Eutimio González, Ambrosio Hernández, Pedro Herrera, Severiano Herrera, Vivian Herrera, Macedonio Huerta, Tiburcio Jácquez, Juan Jiménez, Pedro Jiménez, Serapio Jiménez, Manuel Morales, and Román Nieves.



The Rangers' version of the story was that they had been fired upon by hidden gunmen. But no one really believed it. And, despite clear evidence that a crime had been committed, no Ranger or rancher was ever prosecuted. Governor William P. Hobby did disband Company B—firing some men, reassigning others—and Fox was pressured to resign, though he would somehow be allowed to reenlist in the Texas Rangers in 1925. Among the villagers who survived was Harry Warren, an Anglo schoolteacher whose father-in-law, Tiburcio Jácquez, was among the dead. Warren took statements from other villagers, including Rosendo Mesa, Valencia's grandfather, who had been away on an overnight trip for supplies, and Flores, who had been separated from the men because of his age. Flores showed Warren the bodies the next day. The survivors, including 42 children of the murdered men, abandoned the village and fled across the Rio Grande. A few days later, the cavalry returned to the village and burned it to the ground.

The incident contributed to later reforms of the Texas Rangers, which were spearheaded by Texas State representative José T. Canales, who presented the facts of the massacre to the legislature in 1919. Though the changes were not as far-reaching as Canales demanded, the Rangers instituted new rules of conduct, centralized authority, increased pay, improved recruiting, and dismissed some accused of wrongdoing. But there was no redress for the survivors of Porvenir. For years they pushed for recognition of the massacre through Mexican authorities and the General Claims Commission of 1923, which was established to adjudicate claims made by Mexican and American citizens who had been wronged by conflict between the two countries. A diplomatic agreement concluded between the two nations in 1941 resolved many of the outstanding claims, but did not include a ruling on the massacre.

Flores, his mother Juana, and other survivors carried the trauma of that night with them for years. They struggled with flashbacks, nightmares, and post-traumatic stress. Juana took her own life in 1935. The story began to reenter the family's consciousness when Flores started to talk more about his memories with his daughter Benita Albarado, with Valencia and her family, and with filmmakers who took him back to the site in 2002.

Spent munitions recovered from the site of the Porvenir massacre include military-issue cartridge casings used with Enfield rifles, seen here from above and in profile.

Another person familiar with the massacre was local historian and author Glenn Justice, who, with the permission of the landowner, brought Keller to the site several times. Concerned about the site's long-term integrity—casual collecting there appeared to be an ongoing problem—Keller planned a brief project to collect and protect whatever might remain, supported by then–Texas Land Commissioner Jerry Patterson, who helped marshal resources for the project. "I didn't have high expectations at all," Keller says, "because we're looking at a 100-year-old crime scene that had been subjected to episodic looting."

The project, which included the metal detector survey and a targeted excavation, unearthed 29 new artifacts, which, combined with items previously found there by Justice, brought the total to 50. About half of the finds, including bullets, bullet fragments, and cartridge casings, were examined in detail by battlefield archaeologist and ballistics expert Douglas D. Scott of the National Park Service.

Results of the excavation and Scott's analysis showed that the artifacts formed a distinctive pattern. Most of the bullets and fragments were clustered in a small space in the shadow of the bluff, which was clearly where the men had been killed. The ejected cartridge casings were found a short distance away. Scott examined the distinctive marks made on the casings by mechanical parts of the firearms. He also analyzed the unique grooves carved into the bullets as a result of traveling through the gun barrels. He determined that nine or 10 distinct weapons were used in the massacre, mostly Colt revolvers and Enfield rifles.

The rifles were a surprise: Texas Rangers and civilians were likely to carry Colt pistols, but not Enfield rifles, which were military-issue and heavily controlled during World War I. "We knew they were military rounds as we were pulling them up," says Keller. "It was shocking." Scott's analysis suggests that the military—the U.S. Army Eighth Cavalry, not previously implicated in the massacre—had been involved. This runs contrary to any previous documentation about the massacre, including the memoir of Private Keil and the accounts of village survivors, who made no mention of cavalry soldiers as shooters.

Bullets found at the site of the massacre were fired from both Colt revolvers (top row), commonly used by civilians, and military-issue Enfield rifles (bottom row).

Keller consulted military historians for an alternate explanation of how military weapons could have been used in the massacre. "We haven't found a scenario that is very satisfying that could place those weapons in civilian hands," he says. "It just doesn't work."

The Rangers and soldiers didn't like each other, and the soldiers were highly unlikely to have acted without orders. Thus, the discovery that Enfield rifles were used in the massacre raises a number of questions: Why would the Rangers not have implicated the soldiers when they were held responsible for the massacre? Did the prominence of the Brite family mean that the military was more likely to be involved in reprisals after the raid, even if the people they punished were innocent? "Here's the other problem with this whole thing," Keller says. "Soldiers cannot keep secrets, especially across a lifetime."

For her part, Valencia is skeptical of the soldiers' involvement. She refers back to her great-grandmother's testimony, which she says stated that the Army did not harm Porvenir's residents. "I'm not saying they weren't involved in the plan," Valencia says. "I don't believe they were part of the shooting squad."

The day after the massacre, an elderly Mexican woman whose name has been lost crossed the Rio Grande with a cart to recover the bodies. The 15 victims were buried in a mass grave near the cemetery of a now-abandoned Mexican hamlet, but the precise location of the grave is unknown. Some have suggested that archaeologists should search for the grave in order to exhume the bodies. Forensic analysis of the remains might provide some missing details about the tragic event, but Keller thinks any information that could be gained is not worth disturbing the dead. "Exhuming the remains would do more to open old wounds than help resolve the questions we still have," he says. "We know enough about the horrors of that night." ■

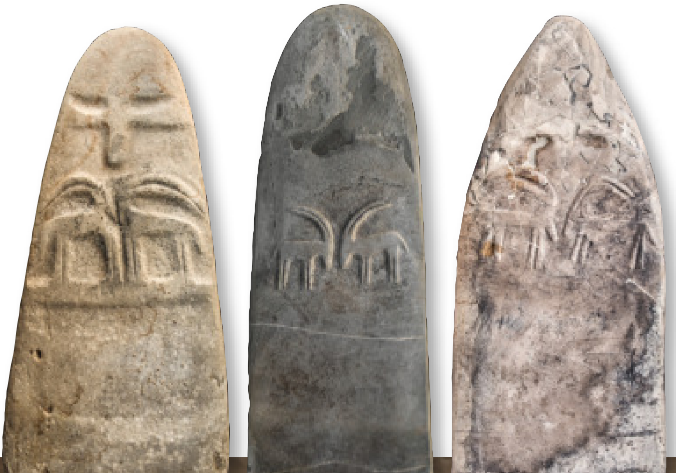
Samir S. Patel *is a contributing editor at* ARCHAEOLOGY.
To learn more about the Porvenir massacre, see
The Injustice Never Leaves You: Anti-Mexican Violence in Texas
by Monica Muñoz Martinez.

Ahead of Their Time

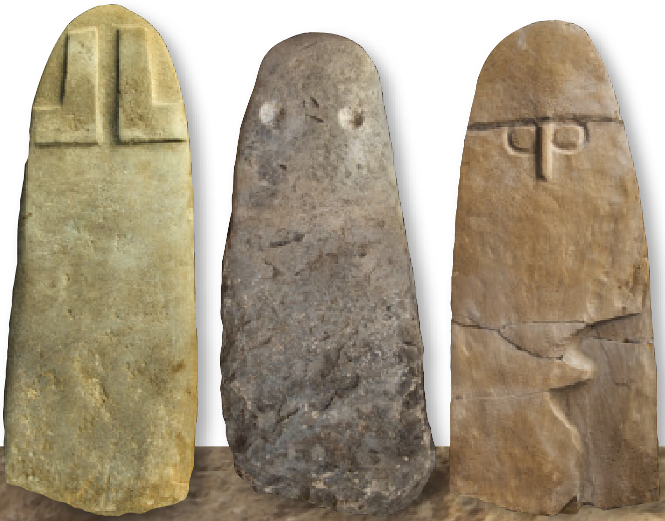
Excavations reveal the surprising sophistication of Copper Age villagers in southwestern Iran 6,000 years ago

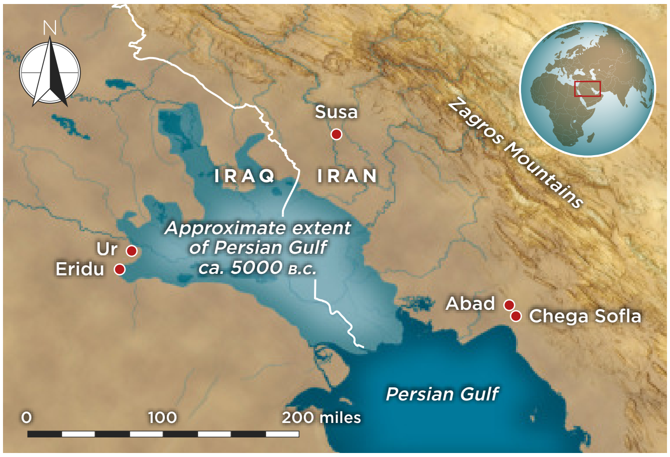
By Eric A. Powell

As his team unearthed a cache of 73 stone steles buried in a mound in southwestern Iran, archaeologist Abbas Moghaddam of the Iranian Center for Archaeological Research added yet one more question to his growing list about the people who



lived at the ancient settlement of Chega Sofla some 6,000 years ago. Since he started leading excavations in 2016 at this site amid the rich agricultural fields of the Zohreh Valley, 10 miles north of the Persian Gulf, Moghaddam and his team have found surprise after surprise that have both deepened and complicated their understanding of the farmers who lived there during the Later Village Period (ca. 5000–3700 B.C.). The cache of steles, some of which were carved with depictions of ibexes confronting each other, was found beneath the floor of the village's temple. This is the first temple that dates to this period—also known as the




N
Susa
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Approximate extent of Persian Gulf ca. 5000 B.C.
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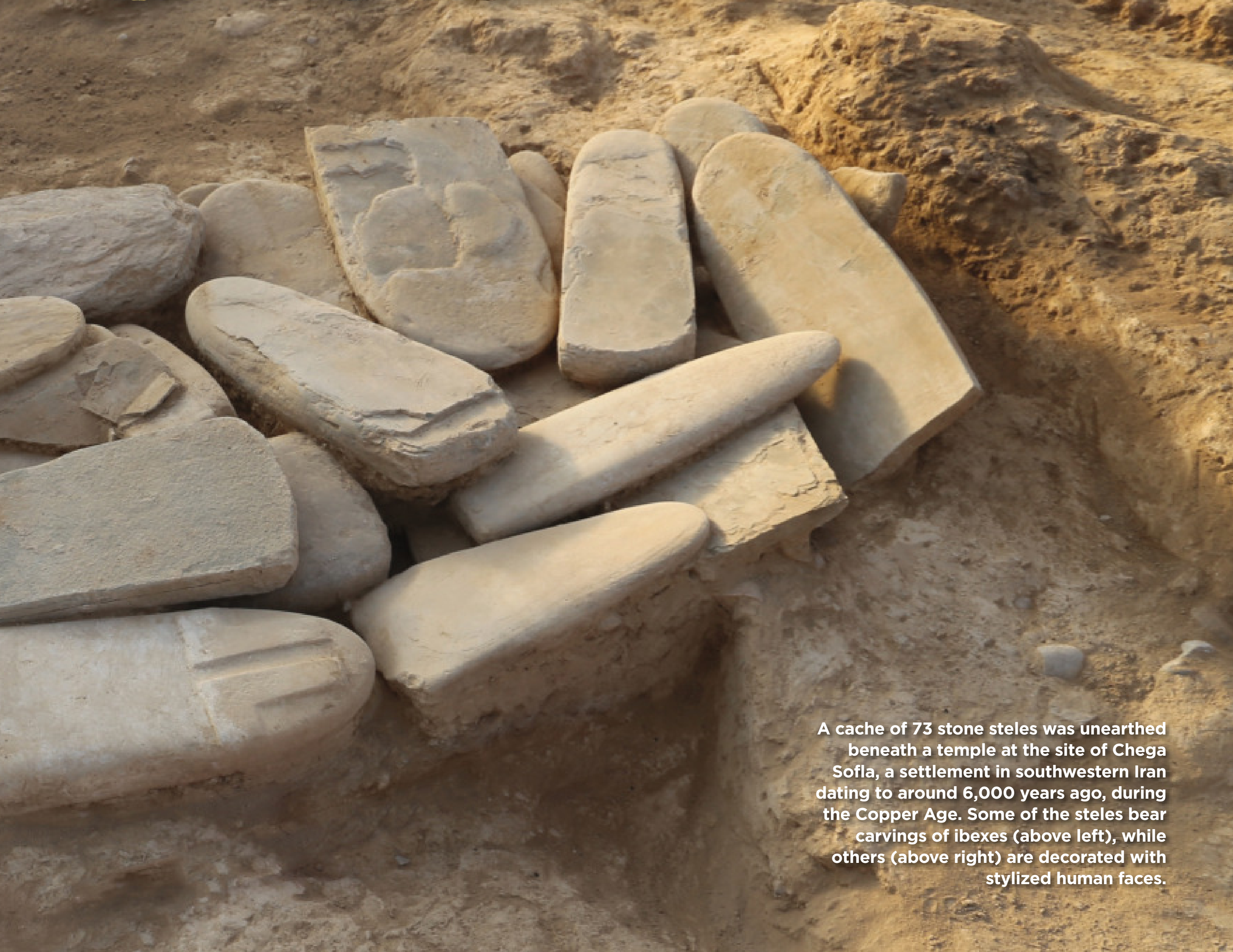
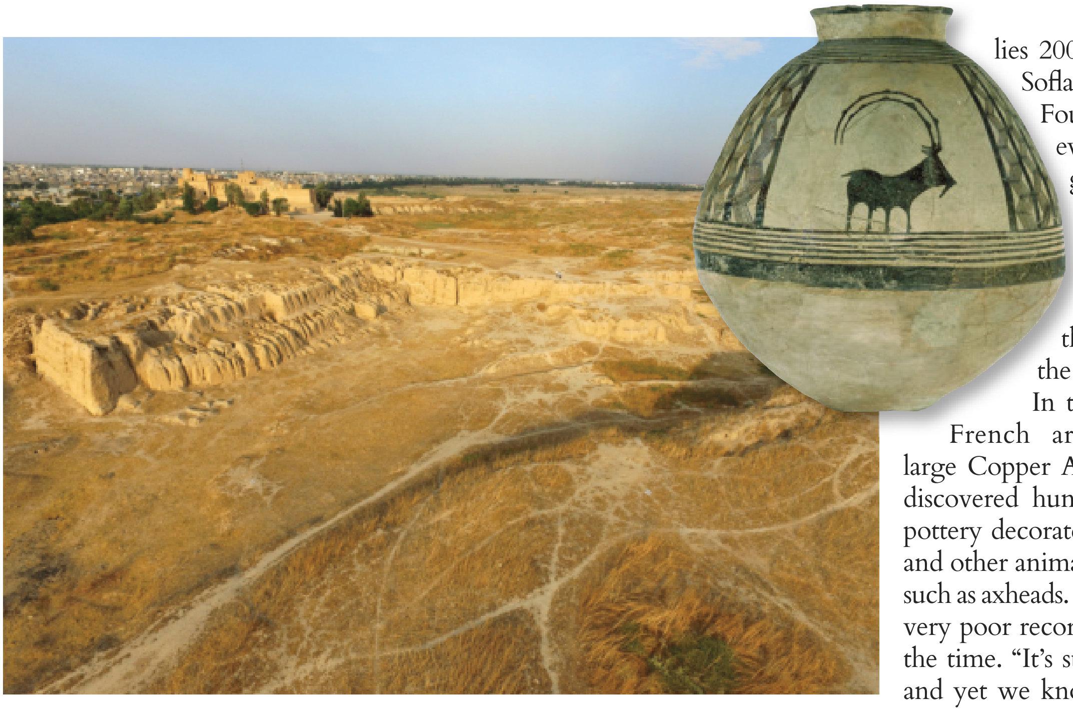


A cache of 73 stone steles was unearthed beneath a temple at the site of Chega Sofla, a settlement in southwestern Iran dating to around 6,000 years ago, during the Copper Age. Some of the steles bear carvings of ibexes (above left), while others (above right) are decorated with stylized human faces.



Susa was founded in western Iran in 4700 B.C. and was an important city for millennia. Excavation of a Copper Age cemetery there yielded copious amounts of pottery (above right) decorated with intricate depictions of animals.

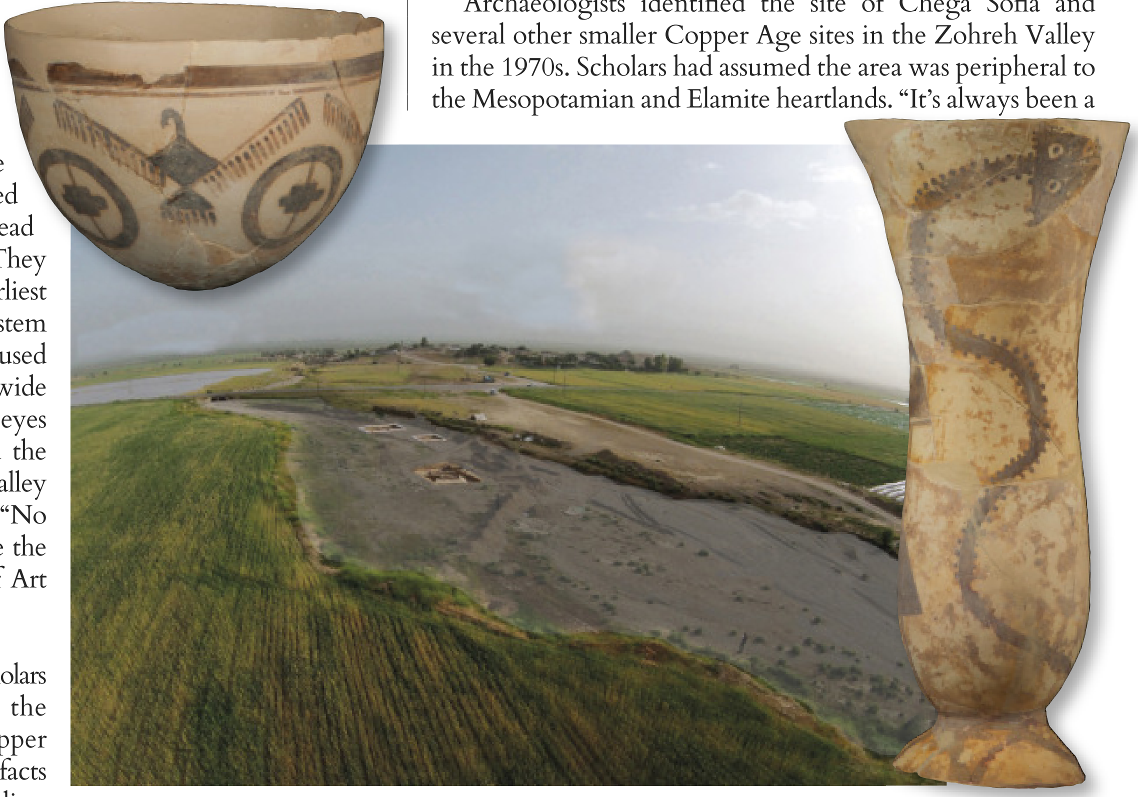
Chalcolithic, or Copper Age—to have been excavated in Iran.

During this era, just before the rise of the earliest cities in Mesopotamia and Iran around 3500 B.C., people lived in increasingly complex alliances of villages. Moghaddam's excavations at Chega Sofla have yielded an unprecedented wealth of detail about this pivotal moment. The inhabitants appear to have been the first in the world to use fired bricks and to bury their dead with silver ornaments. They were also among the earliest to adopt a standardized system of weights that could be used to conduct trade across a wide region. "We are opening eyes to just how sophisticated the people of the Zohreh Valley were," says Moghaddam. "No one expected this. It's like the Metropolitan Museum of Art for the Chalcolithic."

MOST OF WHAT scholars know about the people of Copper Age Iran comes from artifacts unearthed at the sprawling ancient city of Susa, which lies 200 miles northwest of Chega Sofla, near the Zagros Mountains. Founded around 4700 B.C., Susa eventually grew into one of the great cities of the Near East. Around 3000 B.C., it became a capital of the Elamites, a people whose long history was closely interwoven with the Mesopotamian cities to the west.

In the early twentieth century, French archaeologists excavated a large Copper Age cemetery at Susa. They discovered hundreds of graves filled with pottery decorated with depictions of ibexes and other animals, as well as copper artifacts such as axheads. Unfortunately, the team kept very poor records, even by the standards of the time. "It's such an important cemetery, and yet we know almost nothing about it apart from the magnificent ceramics," says archaeologist Daniel Potts of the Institute for the Study of the Ancient World. In the 1970s and 1980s, Belgian archaeologists discovered two more Copper Age cemeteries in the Zagros Mountains. At both sites, they unearthed ceramics in graves that were similar to those found at Susa, but could not locate any settlements nearby where people had lived.

Archaeologists identified the site of Chega Sofla and several other smaller Copper Age sites in the Zohreh Valley in the 1970s. Scholars had assumed the area was peripheral to the Mesopotamian and Elamite heartlands. "It's always been a



A view of Chega Sofla shows excavations underway in the site's necropolis, where archaeologists have found pots, shown here, that are similar to those unearthed at Susa.

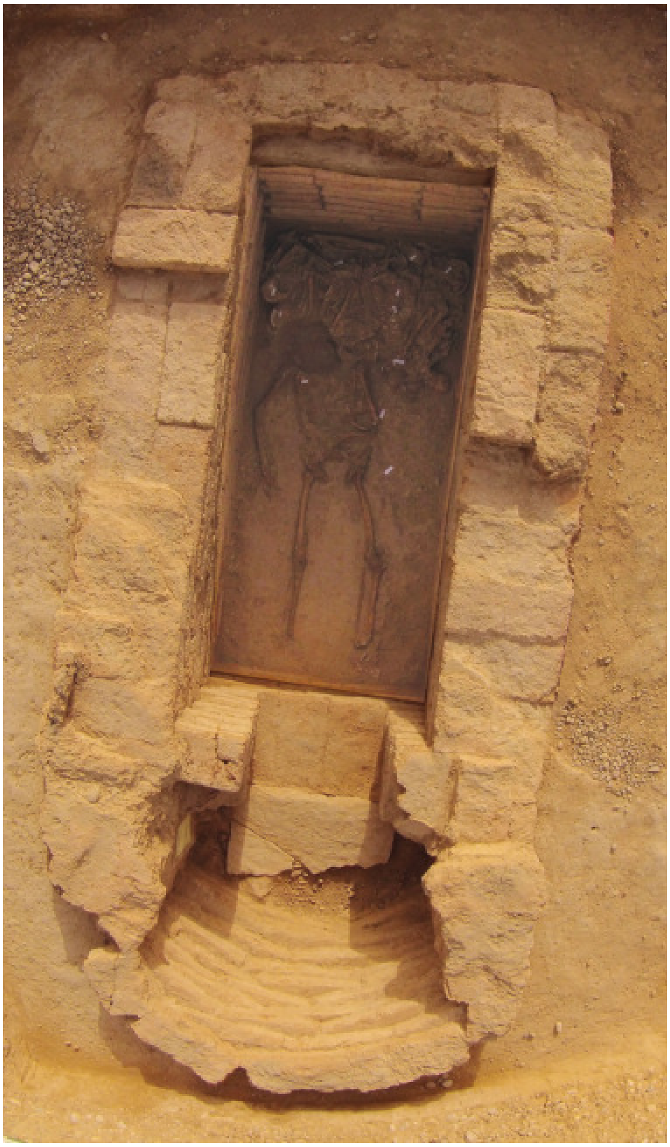
kind of blank spot on the map," says Potts. Archaeologists confined themselves to modest investigations of the site and found little to convince them that further exploration was warranted. Since beginning his archaeological training in the 1990s, Moghaddam was aware of the earlier excavators' reports and wondered whether scholars were writing off a region that, far from being a backwater, was perhaps a place where Copper Age people were just as sophisticated as their contemporaries in Mesopotamia or at Susa. Perhaps they were even developing their own, novel ways of rising to the challenges presented by the population booms that followed the adoption of agriculture by their ancestors during the Neolithic period (ca. 8000–5500 B.C.).

On his first visit to Chega Sofla in 2016, Moghaddam met a farmer who lived in a village that now sits atop much of the ancient site. Upon learning that Moghaddam was interested in ancient things, the farmer showed him a perfectly smooth alabaster vase he had inadvertently unearthed. Moghaddam learned that the farmer had also encountered human bones. "If he had found the cemetery of Chega Sofla," says Moghaddam, "it would be the first chance to excavate a Chalcolithic cemetery next to a settlement since Susa."

FOLLOWING THE FARMER'S TIP, Moghaddam and his team returned to Chega Sofla later that year and focused on a gully just southwest of the site. There, they found several Copper Age artifacts on the surface, including a 23-pound stone weight with a handle. The team conducted geophysical surveys in the gully and discovered that there were several structures under the surface. Subsequent excavations revealed the existence of a sizable cemetery.

During three months of work in the necropolis, the team unearthed the remains of at least 102 people buried in a bewildering variety of ways. Some of their remains had likely been initially interred elsewhere in the Zohreh Valley and then reburied at Chega Sofla, where their bones were mingled with those of dozens of other people. In some parts of the necropolis, burials consisted only of craniums. In one case, the skulls of a man and a woman had been placed facing each other—the team dubbed them the Lovers. Other graves were primary burials, or those of a person whose entire body remained in its original burial location. These included the grave of a 25-year-old woman Moghaddam's team named Khatun, or "the Lady" in Persian. She was buried with objects including copper needles and earrings, as well as a large copper sword. The sword's blade was 1.5 inches thick, making it likely that it was used for rituals rather than in combat. Khatun was also interred with a stone weight, perhaps signaling that she was involved in trade or played some other significant economic role.

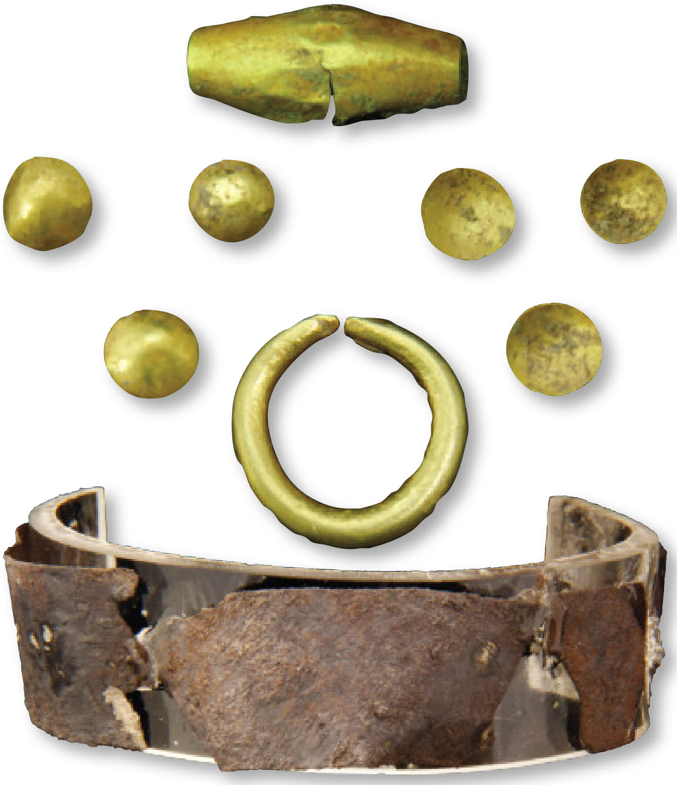
Among other grave goods the team found in the cemetery were stone seals and garnet jewelry. They were also surprised to find a silver bracelet, which Moghaddam believes is the earliest piece of silver jewelry ever discovered, as well as gold jewelry, which he suggests might be the oldest examples of gold ornaments to have been found in burials in the Near East. By comparison, graves at contemporaneous Mesopotamian cemeteries associated with the early settlements of Ur and Eridu contain only ceramics. "Somehow Chega Sofla is different from these other early sites," Moghaddam says, noting that the large number of women interred there also makes it exceptional. "Of the remains we have been able to analyze, around 70 percent are female," he says. "It's almost as if it was a graveyard mainly for women, or perhaps the section of the graveyard we excavated was reserved mostly for women." Eight of the women's skulls were elongated and show evidence of having been modified when the women were alive. Deliberate skull modification during childhood and adolescence was practiced by a wide range of peoples across the world in the past and is thought to have been a hallmark of elite members of society. The team also found that the primary burial of a woman had been set atop every



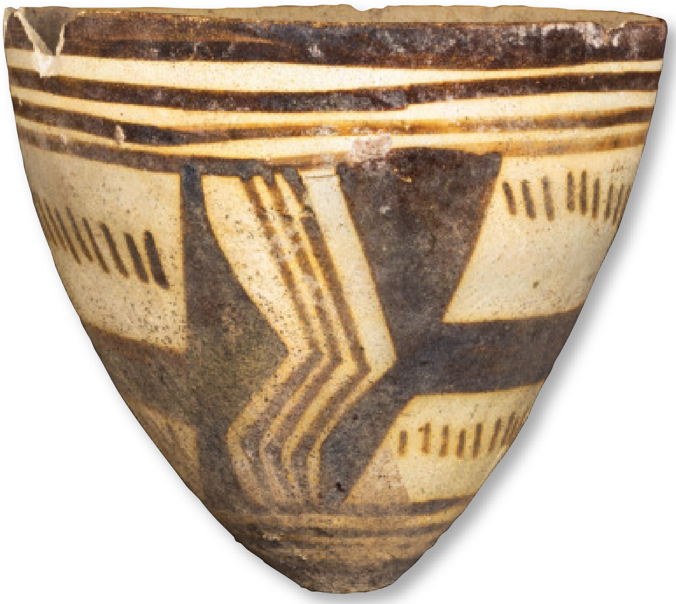
A tomb built of fired bricks is one of several such structures unearthed in the necropolis of Chega Sofla. The fired bricks found at the site may be the earliest known examples of this technology.

grave that held the commingled remains of many people. “I think women had special status,” says Moghaddam.

Throughout the cemetery, the team found alabaster bowls and ceramics decorated with animal motifs such as slithering serpents and birds with outstretched wings that are similar to pottery discovered at Susa. “The quality and diversity of the finds at Chega Sofla is incredible,” says Potts. “The stone carving and metallurgy are even more impressive than what was found at Susa.” Because technical issues related to a high water table at Chega Sofla make radiocarbon dating of the human remains and organic artifacts impossible, the discovery of Copper Age ceramics in nearly all the burials gave Moghaddam confidence that the cemetery was contemporaneous with the one at Susa. The fact that the team was able to date the necropolis to the Copper Age became especially important after they discovered graves lined with fired bricks, a technology that scholars have assumed was first developed in Mesopotamia around 3000 B.C., some 1,000 years after people last lived at Chega Sofla. “When we first excavated these brick tombs, I assumed we had found much later graves, perhaps Elamite,” says Moghaddam. “But they all had clearly Chalcolithic artifacts and ceramics.” The brick-lined graves were aligned in the same direction as the other burials, making it likely that they all belonged to the same period. Not all archaeologists agree that people were making fired bricks in the Copper Age, but if Moghaddam is correct, the inhabitants of Chega Sofla would be the first in the world known to have used the technology.



Pieces of gold jewelry (top) unearthed in the Chega Sofla cemetery may be the earliest gold objects to have been found in Near Eastern burials. A silver bracelet (above) is likely the oldest silver ornament ever discovered.



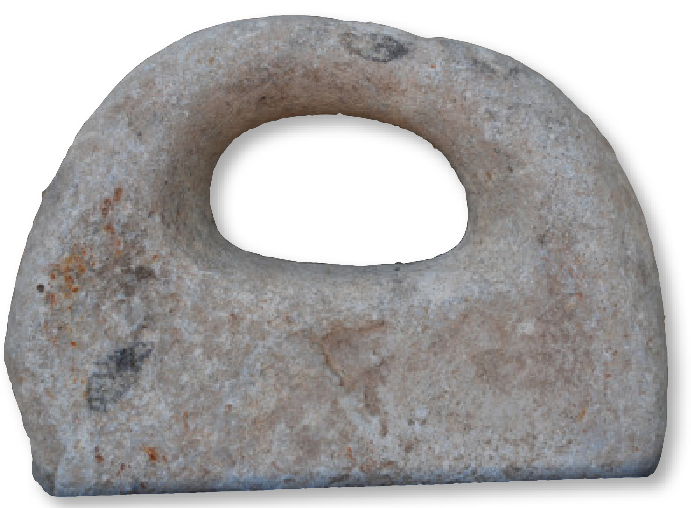
A bowl measuring four inches in diameter was discovered under Chega Sofla’s temple. It is decorated with three groups of marks: One consists of 17 lines, one of 19 lines, and one of 21 lines.

After concluding their excavations at the cemetery, Moghaddam and his team turned to an area they believed could be significant on the site’s northernmost mound, which had not been built over by modern villagers. There, they unearthed remnants of a building they identified as a temple. Depictions of buildings on pottery and small models of structures that seemed to represent temples had been found at Susa, but before Moghaddam discovered the temple at Chega Sofla, archaeologists in Iran had never excavated such a structure dating to the Copper Age.

In addition to the cache of 73 stone steles, the team found that the temple held the remnants of a large H-shaped feature that was likely part of an altar of some sort. This feature was built with the same type of fired bricks they had discovered in the cemetery. Two group burials of animals lay beneath the temple floor. Each included the remains of eight male goats; one held the skeleton of a cow as well. “We can’t say what rituals went on there precisely, but goats were important somehow,” says Moghaddam. It’s probable that people from smaller Copper Age sites in the Zohreh Valley and beyond gathered at Chega Sofla to honor their gods, an act that seems to have involved sacrificing goats.

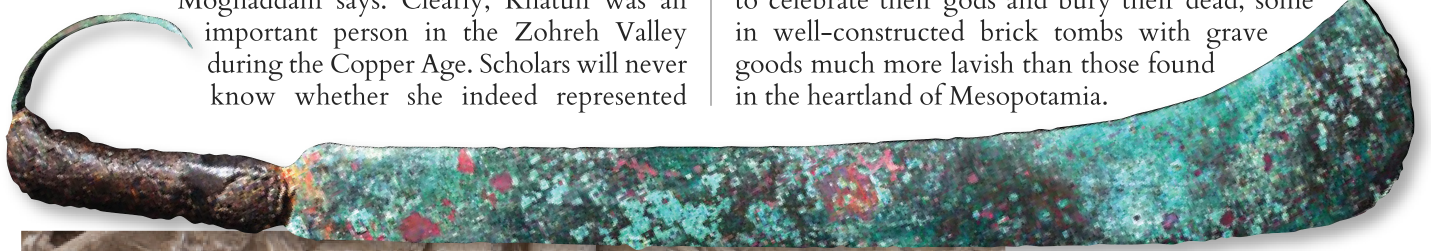
Beneath the temple floor, the team also unearthed a number of ceramic vessels, including a collection of three nested bowls, the smallest of which is decorated with a curious collection of marks. “This is a puzzle,” says Moghaddam. “I call it the magic bowl.” The vessel, which measures four inches in diameter, has three separate groups of marks on its outer surface: one with 17 marks, one with 19, and one with 21, a numerical sequence that Moghaddam doesn’t consider accidental. “Perhaps it was a measuring system of some kind,” he says. “Or maybe the numbers held some other significance.”

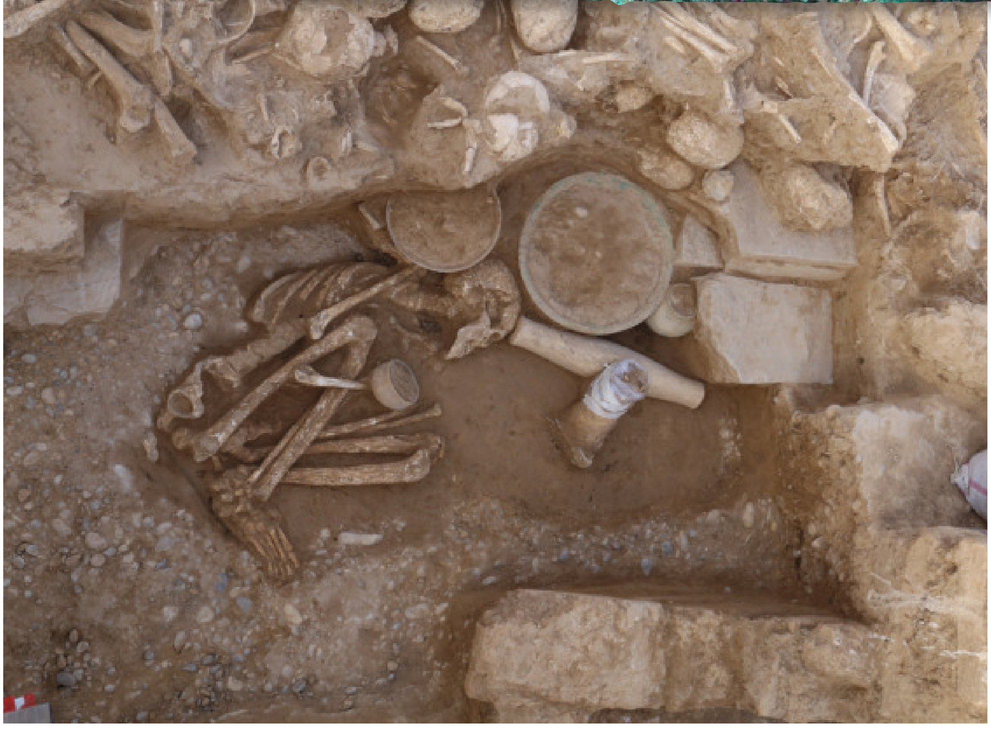
In 2024, local authorities in the Zohreh Valley were alerted that looters were digging in a cemetery some four miles north of Chega Sofla. Moghaddam and his team were brought in to study the site, called Abad, and found that it contained the same type of Copper Age ceramics that had been unearthed at Chega Sofla and Susa. They also discovered that one of the graves held five stone weights with handles, which are similar to the one they had found on the surface at Chega Sofla. Each weight is of a different size. Several of these weights are decorated with marks similar to the ones on the bowl with the numerical sequence, perhaps suggesting that the marks were meant to denote measures of a standardized system. Moghaddam says that this reinforces one of the most important revelations to come from his work in the Zohreh Valley—that Copper Age people there seem to have developed regular systems. "There was a standard in the construction of tombs," he says, "as well as a standard in weighing systems."



A 23-pound stone weight with a handle found on the surface at Chega Sofla is similar to weights recently unearthed at a Copper Age cemetery a few miles to the north.

Moghaddam believes it might be significant that the woman known as Khatun was buried with a stone weight as well as a ceremonial copper sword. For modern people, the scale and sword are symbols of Lady Justice, the personification of law and order introduced by the Romans. "Perhaps for the people of Chega Sofla, the weighing stone symbolized law, and the sword symbolized order," Moghaddam says. Clearly, Khatun was an important person in the Zohreh Valley during the Copper Age. Scholars will never know whether she indeed represented justice, but the rich variety of discoveries at Chega Sofla show that she lived during a time of innovation, when it's possible the concepts of law and order were taking on new meaning as people experimented with novel ways of governing themselves. Moghaddam's research has shown that large groups of people congregated at Chega Sofla to celebrate their gods and bury their dead, some in well-constructed brick tombs with grave goods much more lavish than those found in the heartland of Mesopotamia.





A copper sword (above) was discovered at the site of Chega Sofla in the grave of a 25-year-old woman (left) whom excavators have named Khatun, or "the Lady" in Persian.

The inhabitants of Chega Sofla were part of a vibrant culture that has long gone unrecognized. Moghaddam believes there are similarly important Copper Age sites throughout Iran that have yet to be identified—perhaps they will be the subject of a chapter of history that is still unwritten. ■

Eric A. Powell *is deputy editor at* Archaeology. To see more images of artifacts from Chega Sofla go to archaeology.org/chegasofla.

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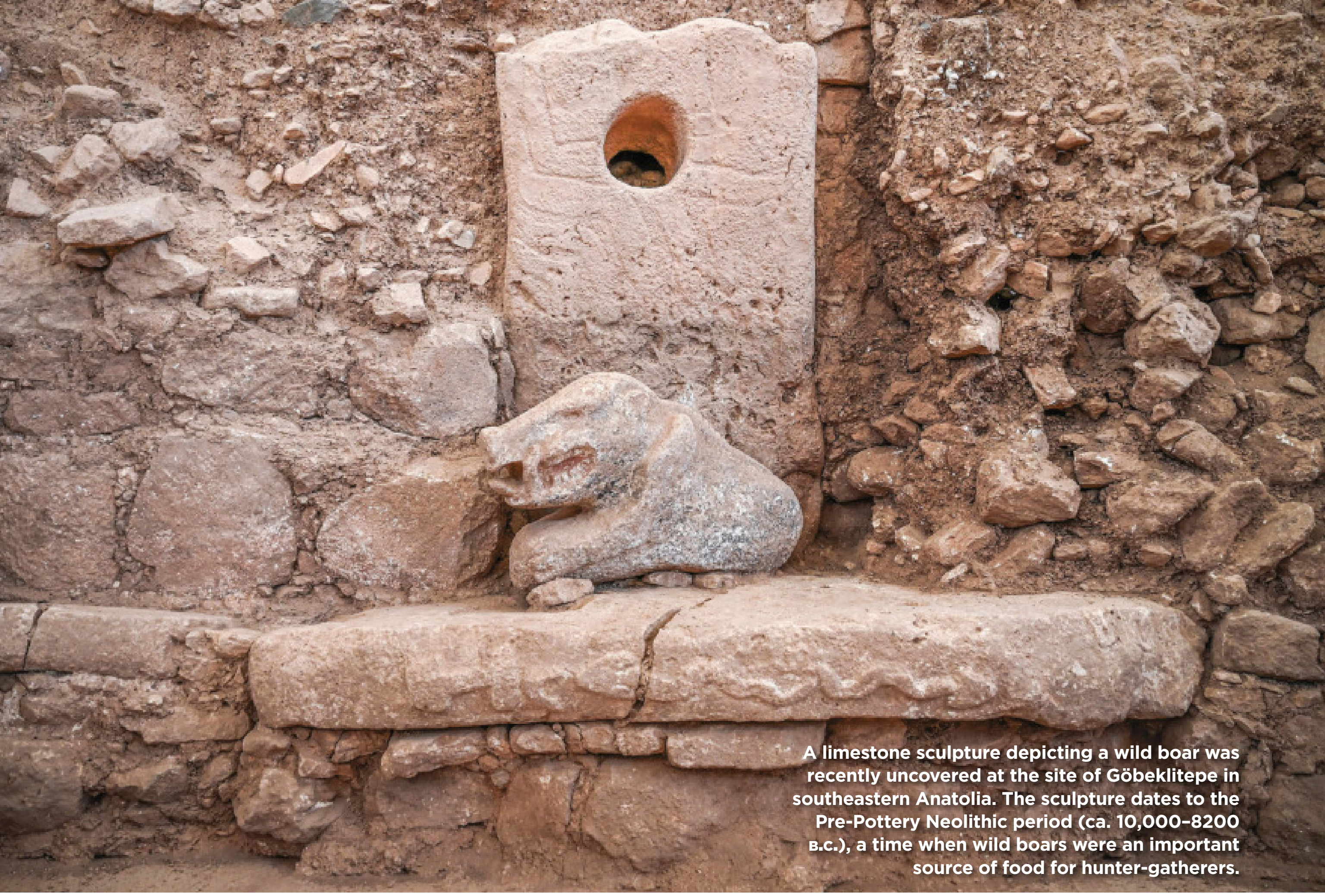


A limestone sculpture depicting a wild boar was recently uncovered at the site of Göbeklitepe in southeastern Anatolia. The sculpture dates to the Pre-Pottery Neolithic period (ca. 10,000–8200 B.C.), a time when wild boars were an important source of food for hunter-gatherers.

LETTER FROM THE LEVANT

ON THE ORIGIN OF THE PORK TABOO

Exploring ancient people's shifting beliefs about rearing and eating pigs

By Andrew Lawler

Pork accounts for more than a third of the world's meat, making pigs among the planet's most widely consumed animals. They are also widely reviled: For about two billion people, eating pork is explicitly prohibited. The Hebrew Bible and the Islamic Koran both forbid adherents from eating pig flesh, and this ban is one of humanity's most deeply entrenched dietary restrictions. For centuries, scholars have struggled to find a satisfying explanation for this widespread taboo. "There are an amazing number of misconceptions people continue to have about pigs," says archaeologist Max Price of Durham University, who is among a small group of scholars scouring both modern excavation reports and ancient tablets for clues about the rise and fall of pork consumption in the ancient Near East. "That makes this research both frustrating and fascinating."

Among the most surprising finds is that the inhabitants of the earliest cities of the Bronze Age (3500–1200 B.C.) were enthusiastic pig eaters, and that even later Iron Age (1200–586 B.C.) residents of Jerusalem enjoyed the occasional

Beginning five million years ago, *Sus scrofa* (top), the wild boar, spread from Southeast Asia across Asia and into Europe. Around 10,000 years ago in the Near East, the species began to transform into *S. scrofa domesticus* (above), the domesticated pig.

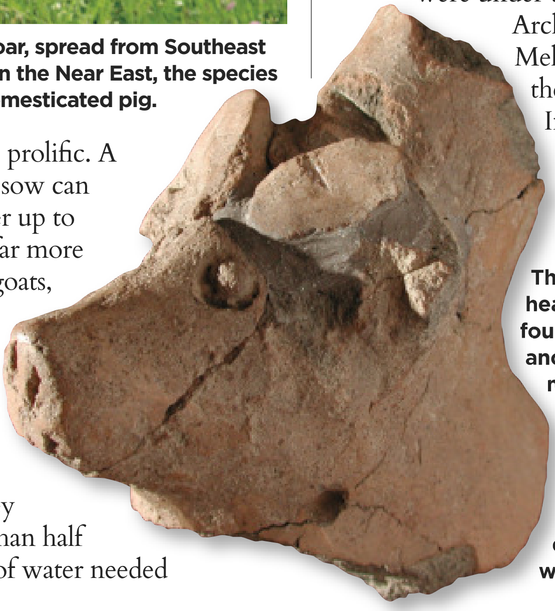
pork feast. Yet despite a wealth of data and new techniques including ancient DNA analysis, archaeologists still wrestle with many porcine mysteries, including why the once plentiful animal gradually became scarce long before religious taboos were enacted. Ultimately, the tale of the pig in the ancient Near East reveals how humans thrived in the first cities, the ways in which economic inequality shaped early urban societies, and the important role that diet played in defining ethnic groups and distinguishing friend from foe.

Pigs are prolific. A single sow can mother up to 100 piglets, far more than sheep, goats, or cows, and their offspring can reach maturity in about six months. They require less than half the amount of water needed by a cow or a horse, making them more drought tolerant. In many parts of the globe, past and present, pigs root through trash, converting noxious garbage into nutritious food. Today, one billion pigs are slaughtered annually to produce a wide array of food products, including pork chops, ham hocks, bacon, and lard.

The domestic pig's story begins with the wild boar, *Sus scrofa*, which roamed Southeast Asia more than five million years ago and slowly spread across Asia into Europe. Early humans hunted this intelligent, fierce animal across both continents. Some 10,000 years ago in the Near East, and a few millennia later in China, *S. scrofa* began to transform into *S. scrofa domesticus*. Precisely how this took place is only now coming into focus.

In the 1990s, at the site of Hallan Çemi in southeastern Anatolia, archaeologists unearthed 51,000 animal bones dating to about 10,000 B.C. Of these, boar bones made up nearly one in five of the recovered remains, suggesting that the animal was an important source of meat. Researchers also found that nearly half the boars were less than a year old when killed, and that most of the rest were under three.

Archaeologist Melinda Zeder of the Smithsonian Institution's National Museum of Natural History argues



This small ceramic head of a pig was found at Tell Mozan, ancient Urkesh, in northeastern Syria. The figurine dates to the third millennium B.C. and more closely resembles a domestic pig than a wild boar.

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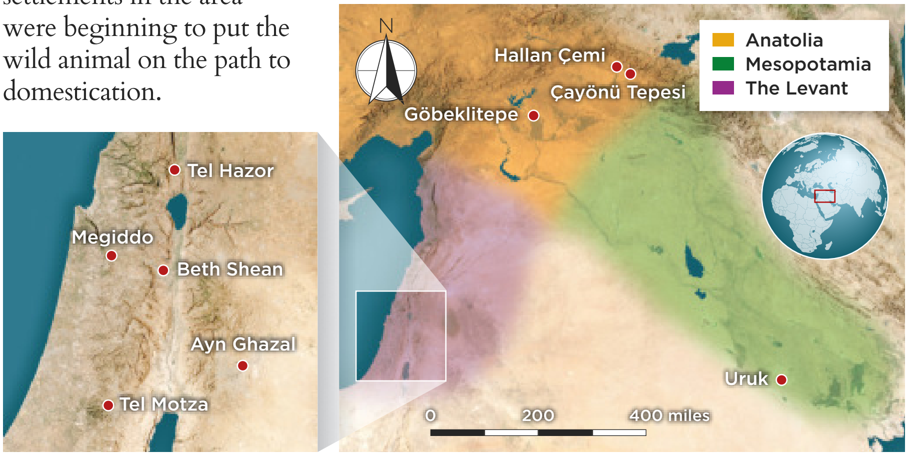
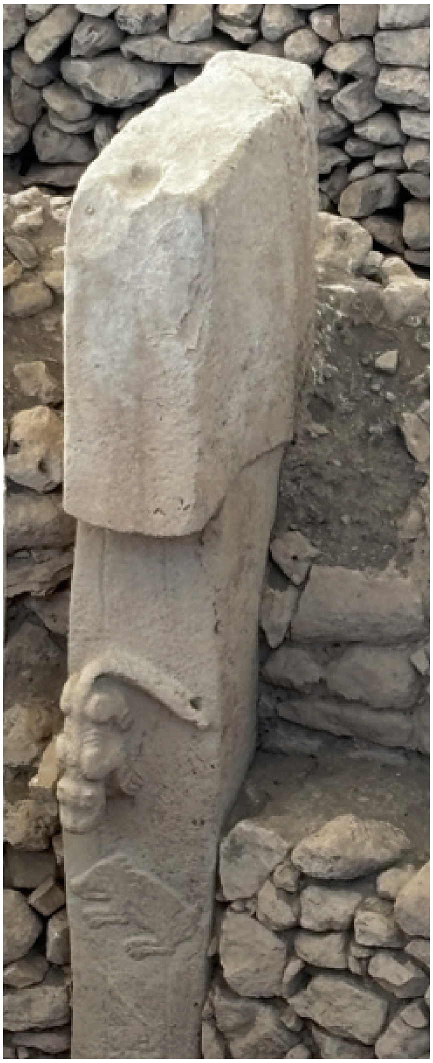
that settlements such as Hallan Çemi mark the start of the long process of pig domestication, which began around the same time humans started to live in permanent settlements and to transform wild grasses into cultivated grain. "Boars were drawn to places humans inhabited, with their accumulation of trash, as well as to their fields," Zeder says. The animals' proximity allowed hunters to pick and choose their prey. "People had a culling strategy that encouraged the growth of herds," she adds, noting that hunters targeted young male boars and allowed sows to live in order to breed. Pigs' significance to the people of these early settlements is reflected in the numerous representations of wild boars that have been discovered at the Pre-Pottery Neolithic (ca. 10,000–8200 B.C.) site of Göbeklitepe, also in southeastern Anatolia.

At another site in the region, called Çayönü Tepesi, which began to be settled around 8600 B.C., archaeologists excavating from the 1960s to the 1990s unearthed a number of boar molars and skulls that came from younger animals and were smaller than those dating to the beginning of the Pre-Pottery Neolithic. Zeder believes that these morphological changes show that the people living at Çayönü Tepesi—and, almost certainly, at other settlements in the area—were beginning to put the wild animal on the path to domestication.

The first site in the Near East where archaeologists have found unmistakable evidence of pig domestication is Tel Motza, a large Neolithic settlement established around 8600 B.C. in what is now Jerusalem. In 2012, archaeologists uncovered large numbers of bones there dating to just after 7000 B.C. that show clear signs of traits associated



🟧 Anatolia
🟩 Mesopotamia
🟪 The Levant



One of the T-shaped limestone pillars at Göbeklitepe includes images of a crouching cat and a wild boar.

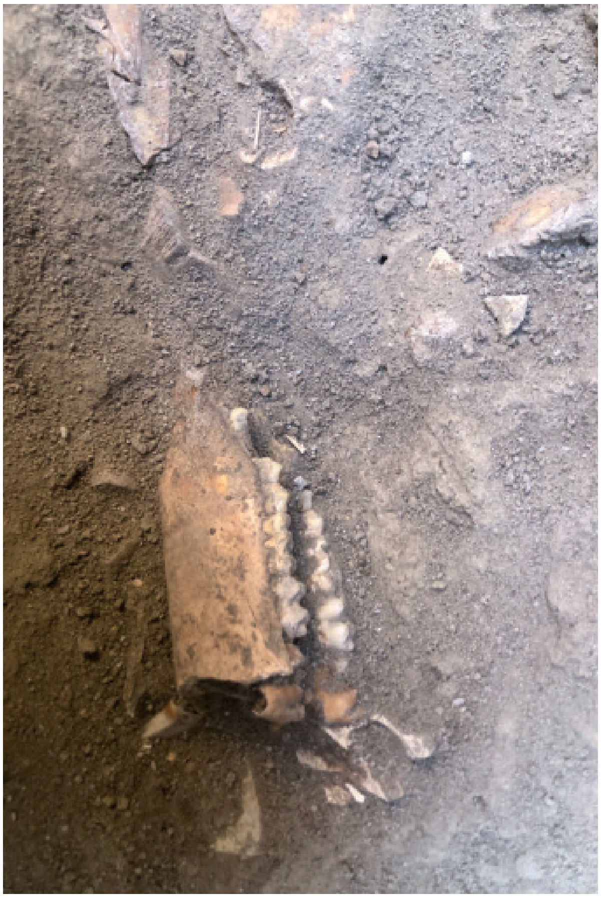
with the fully domesticated pig, which is smaller, shorter-faced, and more docile than its wild cousin. Further excavations across the region have shown that *S. scrofa domesticus* appeared not long after at other Neolithic sites.

The spread of domesticated pigs was slower and more uneven than it was for sheep and goats, which were domesticated at roughly the same time. Pigs appear to have thrived in areas with access to water and forests where they could forage for nuts. These omnivorous animals not only provided copious meat, but also cleaned up food scraps and human waste that might attract pests or spread disease. Caches of deliberately buried bones at Neolithic sites provide evidence that people slaughtered pigs for barbecues that may have encouraged social cohesion as well as serving as a nutritious meal. At the site of Ayn Ghazal in Amman, Jordan, a Neolithic settlement inhabited by some 3,000 people that flourished from around 7200 to 5000 B.C., archaeologists in the 1980s found pig skulls buried with those belonging to humans, indicating that people perceived the animal as important in ways beyond its utility as a food source.

With the growth of the world's first urban areas, starting in southern Mesopotamia around 3500 B.C., pigs found their niche. Yet their central role in the development of the earliest cities in what is now southern Iraq has been overlooked and underestimated. "We often imagine Mesopotamian foodways in the Bronze Age as having no pigs, but most meat eaten in the largest cities was pork," Price says. "Big cities are fantastic places to raise pigs. They have shade, stagnant water, and are protected from predators." And they have lots of trash.

Although archaeologists have found large numbers of pig bones at early cities such as Uruk, ruminants—animals including cows with four-chambered stomachs that can digest grass—dominate the written record that evolved in tandem with urban life. Herds of sheep, goats, and cattle were relatively easy for government officials to oversee, says Price. Not so pigs, which can live, breed, and be slaughtered quickly in a backyard lot. The swine didn't need grazing land, just the day's leftovers. "Large-scale management of pigs really wasn't possible," says Zeder. "The small-scale nature of pig raising became a beacon for the urban poor. It existed as a sub-rosa element of the economy."

Thousands of clay tablets uncovered across Mesopotamia show



A well-preserved pig jaw excavated at Tell Surezha in Iraqi Kurdistan dates to the fifth millennium B.C. and is evidence of swine raising in the ancient Near East.

that scribes gave short shrift to an animal that was difficult to tax. And excavations reveal that those living in wealthy households, palaces, and temples came to prefer mutton and beef, likely reflecting pork's lowly reputation. Ruminants also provided lucrative secondary products including milk and wool, which became economic mainstays for better-off residents of these first cities.

The Hittites, who ruled over Anatolia from around 1600 to 1200 B.C., are known to have commonly sacrificed pigs in ritual acts. As the Bronze Age progressed, however, swine were gradually excluded from rituals across the region, and pork consumption dropped. By 1600 B.C., less than one in 20 bones found at sites in the Levant typically come from pigs, and most of those appear to be wild boars that were hunted. At the dawn of the Iron Age, some 500 years later, pig-rearing had virtually ceased. "There's no sign of a sudden taboo, disease, or environmental change," says Price. "What is clear is that sheep, goats, and cattle took over." Price suspects that a host of factors contributed to this gradual decline, including more frequent droughts, loss of nut-bearing forests, and the

This bronze figurine depicting a wild boar was likely created in Gaul and dates to the first or second century A.D., when the region was part of the Roman Empire.

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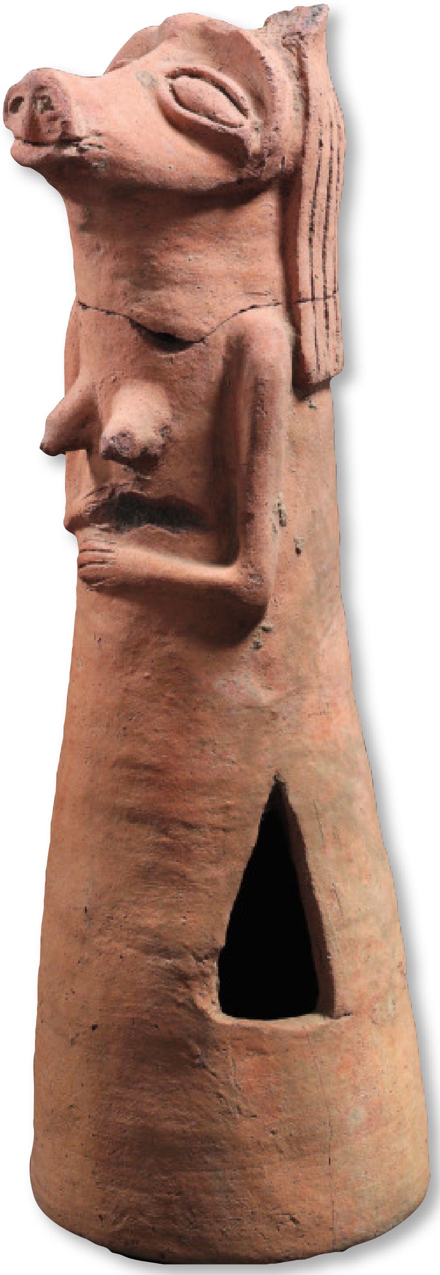
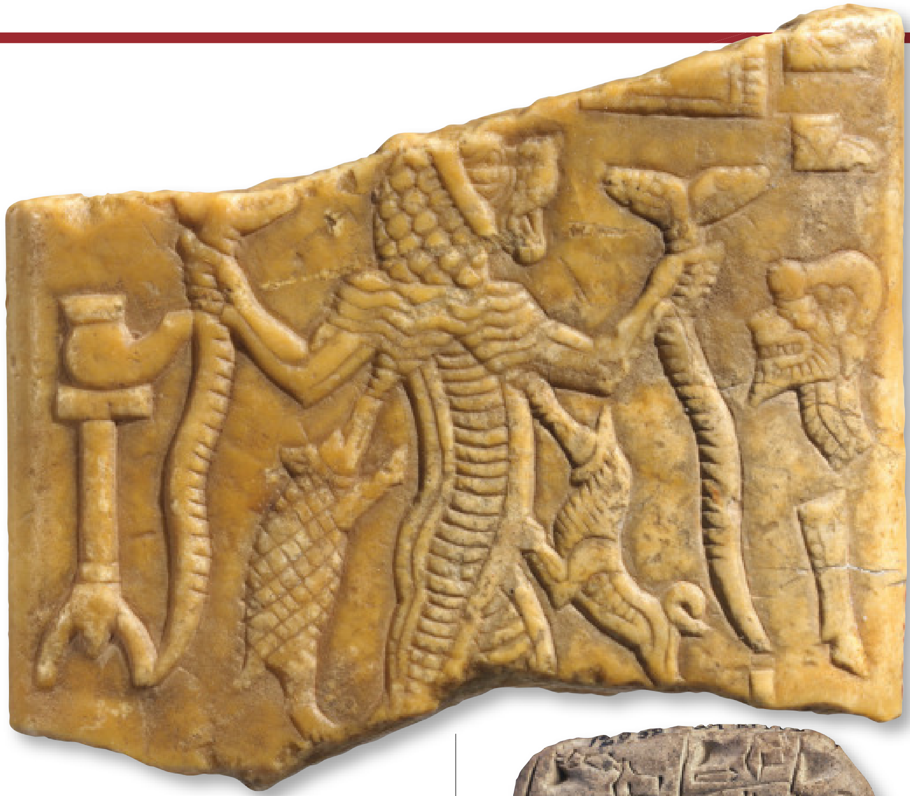
rise of the wool and milk-product trade. "Pigs lost their status," Price says, as they were increasingly seen as scavengers with an insatiable appetite for food and sex. The stage was set for a more widespread and all-encompassing taboo.



A terracotta figurine in the form of a pig was made in Egypt around 3000 B.C., during the Early Dynastic period.

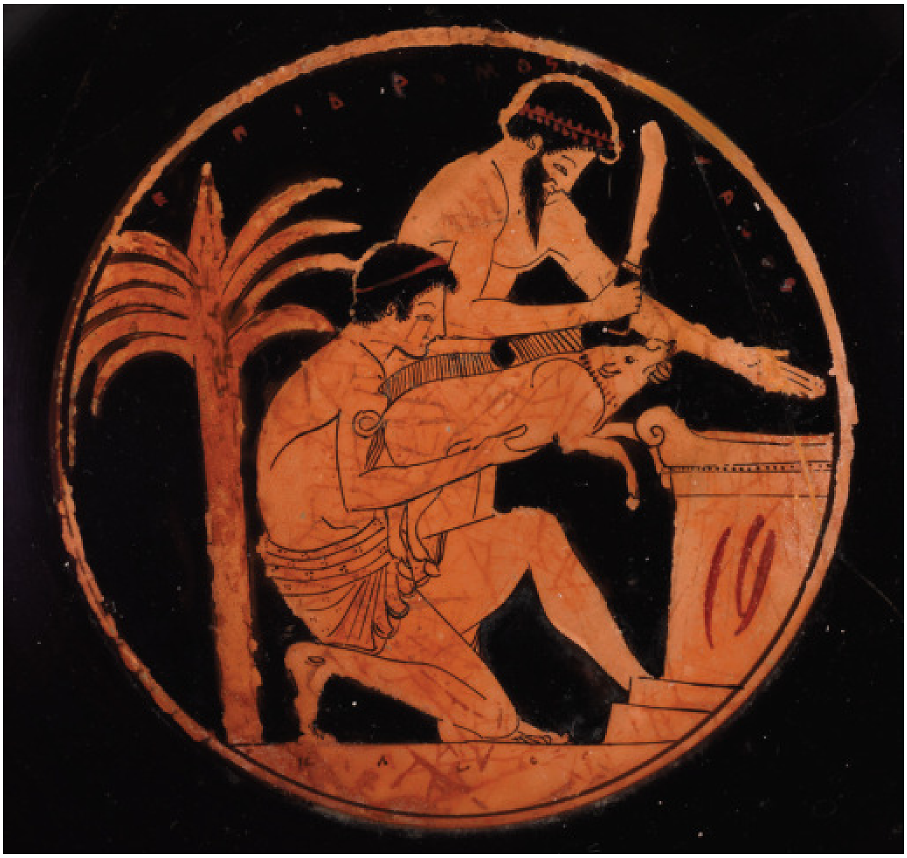


This Babylonian amulet (above) dating to the seventh or sixth century B.C. shows a mythological beast called a *lamassu* (center) flanked by a wild boar and other animals. A clay tablet (right) from the site of Uruk in Iraq dates to around 3000 B.C. and contains 58 different terms for swine.

Most scholars believe that the Hebrew Bible was written down in Jerusalem between around 600 and 300 B.C. The Book of Leviticus contains a warning that the pig "is impure to you; from their flesh, you shall not eat, and their carcasses you shall not touch." Many historians assume that this prohibition reflects an ancient tradition that stretched back to the Israelites, who, by 1200 B.C., lived in the highlands of the southern Levant with flocks of sheep and goats and herds of cattle. The absence of swine in the archaeological record of such settlements in this rugged region is no surprise. "In the majority of cases," Price says, "a mobile, pastoral way of life, especially in the Near East, generally does not include raising pigs."

Yet to the west, along the Mediterranean coast, archaeologists have found abundant evidence of pork consumption in contemporaneous cities associated with the Philistines, who are thought to have arrived with the Sea Peoples from the Aegean around 1200 B.C. The Philistines built cities in what are now Israel and Gaza, creating a loose confederacy. (See "The Philistine Age," July/August 2022.) They also brought their own pigs. Tel Aviv University archaeologist Meirav Meiri has extracted DNA from ancient pig remains in Greece and Israel and found that varieties of European pigs had swamped the local gene pool by around 900 B.C. and became dominant.

In the Hebrew Bible, the Philistines are the Israelites' chief nemesis. For archaeologists who consider the contrast in pig consumption between the two groups to be a reliable marker of ethnic identity, the story went that if you dug a site in the region without pig bones, you had found an Israelite settlement. "Or so it was thought," says archaeologist Lidar Sapir-Hen of Tel Aviv University. Additional finds, along with more accurate dating techniques, now show that the Philistines weren't voracious pork eaters after all. Pig bones in large Philistine cities rarely account for more than a fifth of the meat that people consumed. In nearby smaller towns and villages, that figure drops to just 1 percent. "After the tenth century B.C.," Price says, "the Philistines have largely given up pork in urban as well as rural areas." These settlers came to imitate their neighbors, including the Israelites, and sheep, goats, and cattle became the favored meats on the menu.



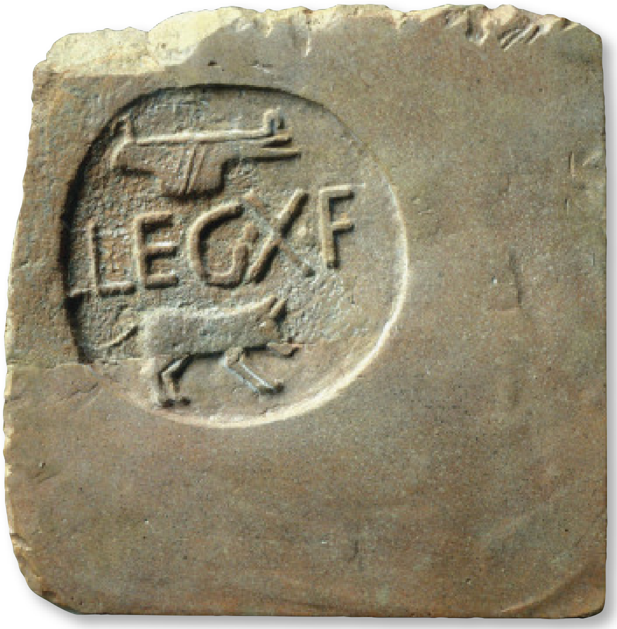
An image from a fifth-century B.C. red-figure Greek cup shows the sacrifice of a pig.

The skeleton of a baby pig found in the heart of Jerusalem was dated to around 700 B.C.

At the start of the Iron Age, the story of the pig in the Near East takes a surprising turn. Archaeologists have detected an uptick in pork consumption in the region around 1000 B.C. This was about the time that the Israelites conquered Jerusalem by defeating a local Canaanite tribe and made it the capital of what became known as Judea. "There's a creeping increase in pigs at this time, primarily in the northern kingdom of Israel," says Price. At the urban sites of Megiddo and Tel Hazor, for example, excavators have unearthed butchered pig bones dating to the period between 1000 and 586 B.C., while at the site of Beth Shean, they have discovered that one in 12 bones belonged to swine.

Even Judeans, who scholars had assumed avoided pork, weren't, it seems, immune to the lure of a pig roast. Sapir-Hen was part of an Israel Antiquities Authority team in 2021 that examined a complete pig skeleton dating to about 700 B.C. that had been unearthed in the heart of Jerusalem. The seven-month-old animal died when a building associated with a wealthy family collapsed. Had the young animal survived, it likely would have ended its days at the slaughterhouse—other pig bones that were found nearby have butchery marks. Whether this pig was destined for the plates of lowly servants or those of the well-to-do family isn't clear. Although only about one in 50 animal bones found from this era in Jerusalem are from pigs, these discoveries show that eating pork wasn't unheard of among some city dwellers, even those living in prosperous homes in the middle of town. "Every excavation in Jerusalem and Judah from the same period has found some pig bones," says Sapir-Hen.

Why the prohibition on pork was codified in the Hebrew Bible has long been disputed. Some scholars argue that the taboo was a way to discourage rearing an animal unfit for the harsh terrain and dry climate of the Levantine highlands. Others insist the taboo was a health measure intended to prevent the spread of trichinosis, a parasite that can lurk in undercooked meat and inflicts sufferers with diarrhea, vomiting, and fever. One scholar posits that the domesticated chicken's arrival from Iran provided an alternative to raising pigs.



A first- to second-century A.D. ceramic roof tile found in Jerusalem bears a battleship and a wild boar, the emblems of the Roman Tenth Legion (abbreviated "LEGX F").

Price points out, however, that none of these theories fully accounts for the taboo. Pig-rearing, after all, had existed for thousands of years in the region, even in times of drought, and many types of meat can harbor the larvae that cause trichinosis. Moreover, chickens didn't become common in Near Eastern farmyards until centuries after the Hebrew Bible was written. For Price, the key piece of evidence is the sole reason given for the taboo in the biblical text—the fact that the pig "has hooves and does not chew its cud." In other words, it's unlike ruminants. He argues that this harks back to an era when the Israelites were simple pastoralists. As their descendants settled down in towns and cities, raising pigs became a more viable option. "This detracted from the fantasy of living like their ancestors," says Price, prompting Judean priests to ban eating pork.

At the time, according to Jordan Rosenblum, a scholar of classical Judaism at the University of Wisconsin–Madison, pigs were just one of many prohibited foods. "The Hebrew Bible equally bans eating the pig, the camel, the hare, and other animals," he says. Fish without scales, rock badgers, and certain birds were also off-limits.

Rosenblum argues that the pig taboo only gained special status with the invasion of the Levant by the forces of the Macedonian ruler Alexander the Great in 332 B.C. These European conquerors enjoyed their pork, and pig consumption in the Levant soared. So did tensions between Judeans and their Hellenistic rulers, including the Ptolemaic kings of Egypt and the leaders of the Seleucid Empire based in today's Iraq.

Archaeologist Yonatan Adler of Ariel University argues that Judaism didn't emerge as a fully codified religion until at least the second century B.C., partly in reaction to Hellenistic domination. Rosenblum cites a story from the Second Book of Maccabees, which dates to the second century B.C. in which a group of Judeans forced by Hellenistic officials to eat pork chose martyrdom instead. He says that such tales underscore how the prohibition against eating pork emerged as a symbol of political and religious identity.

The Hellenistic kingdoms collapsed in the first century B.C., only to be replaced by the Romans, whose enjoyment of pork repasts was even greater than the Greeks'. Rome's legendary founders, Romulus and Remus, were sometimes depicted as suckling on a wild sow. Pigs were often ritually sacrificed, and two Roman legions chose a boar as their emblem. When Rome annexed Judea in 63 B.C., soldiers brought herds of large, fast-growing pig varieties, and the animal once again became a common fixture of the Near Eastern diet—except among Judeans.

First-century A.D. Roman writers including Apion and Seneca puzzled over the Jewish prohibition on

This Roman marble relief depicts the Trojan hero Aeneas and his son Ascanius' arrival in Italy. Aeneas consults a sow, who tells him where to found Lanuvium, precursor to Rome.

eating pigs, along with the practice of circumcision and observance of the Sabbath. Their confusion could shade into mockery. "One of the most significant developments in the classical period was the weaponization of pork against the Jews," says Price. Rosenblum adds that among the emerging class of Jewish teachers known as rabbis, pigs became a symbol of corruption, greed, oppression, and violence, all of which they associated with Rome. Stories about Jews killed by Romans when they refused to eat pork proliferated. "Rome becomes the pig," says Price.

Nevertheless, archaeological evidence shows that people continued to eat more and more swine in the southern Levant in the first few centuries A.D., returning to levels not seen since the early Bronze Age. By this time, followers of the nascent Christian religion had rejected Jewish dietary restrictions, in part to attract non-Jewish followers. Pigs remained a staple in the Levant through the first centuries of the Byzantine period. That began to change with the arrival of Islam in the region in the A.D. 630s. Muslims took a middle ground, rejecting most Jewish dietary restrictions but accepting the prohibition on pork. The Koran says the pig is unclean and therefore forbidden, along with blood, dead animals, and animals not dedicated to Allah. This taboo likely did not force a significant change on the faith's followers: Pre-Islamic sites excavated on the Arabian Peninsula contain few pig bones. This is unsurprising, given the hot and very dry climate and the primarily pastoralist lifestyle on the peninsula.

Although pork consumption declined with the rise of Islam, it never stopped completely. Despite climate change, shifting food fashions, and outright religious bans, people in the Middle East have been raising pigs for at least 10,000 years. In today's Israel, Palestinian Christians continue to enjoy pork barbecues. There is even a Jewish kibbutz where pigs are raised for medical research, and the surplus meat is sold. The animal that Price calls "intelligent, curious, and social" seems destined to remain an inextricable part of the region's foodways. ■

Andrew Lawler *is a contributing editor at* ARCHAEOLOGY.

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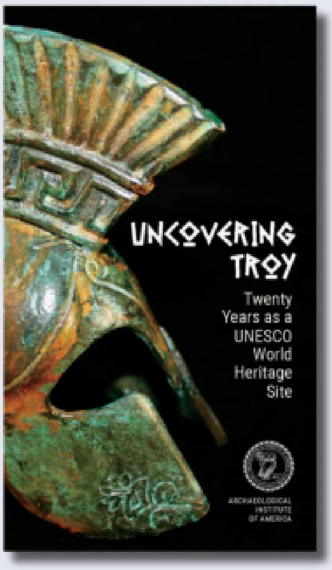
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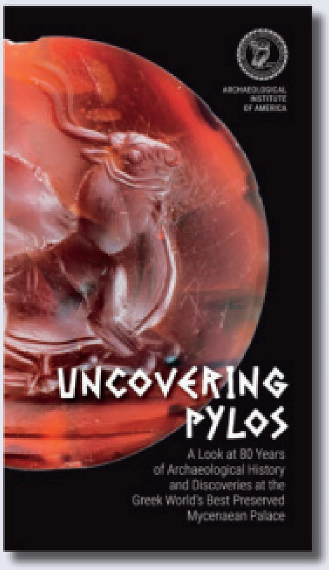
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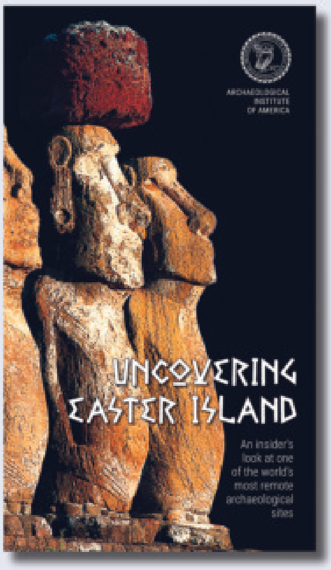
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Pantheon, Rome, Italy

EDUCATE

Whether you're an eager undergraduate or a tenured professor, securing funding can be a challenge. That's where the Archaeological Institute of America's Student Affairs Interest Group (SAIG) comes in. At this year's Annual Meeting, the SAIG workshop brought together a diverse panel of experienced people, including successful grant and fellowship applicants, members of application review committees, and representatives of fellowship programs. The workshop aimed to demystify the application process, address issues of accessibility and inequality, and provide students and early-career scholars with practical knowledge of the ins and outs of funding. Panelists discussed what review boards look for in applications, how to craft proposals, and the importance of staying true to one's research focus. By equipping participants with valuable tools and strategies, SAIG aims to create a more inclusive environment and support the future of archaeology, which lies in the hands of today's students.

Join

The AIA is a community of people passionate about archaeology, just like you!
Join our archaeological community and become an AIA society member at archaeological.org/join.

FROM THE FIELD

EXCAVATE

Interview with AIA Award Winner Andrea Berlin
At its 126th Annual Meeting, the Archaeological Institute of America (AIA) was thrilled to present the 2025 Gold Medal Award for Distinguished Archaeological Achievement to Andrea Berlin, James R. Wiseman Chair in Classical Archaeology at Boston University. We asked Andrea to share some insights, experiences, and her passion for archaeology.

Tell us about your history with the AIA.
I've been an AIA member since my college days, 50 years ago. I have also served as an AIA trustee and traveled the country as a national lecturer for some 20 years, and I was awarded the Excellence in Undergraduate Teaching Award.

What drew you to archaeology?
At 17 years old, I went on a dig at Tel Sheva in southern Israel, where I excavated a small house filled with storage jars, cooking pots, drinking cups, and spindle whorls. In college I only learned about "high culture"—sculpture, architecture, and painting—so I chose to write my Ph.D. dissertation on household pottery. I wanted to write about the history that ordinary people lived and made.

Gold Medal winner, Andrea Berlin

What achievement are you most proud of ?
I am most proud that archaeologists now regard pottery as valuable historical evidence. From my first days at Tel Sheva, I have been convinced that ceramics are a key to the lockbox of history. I am also proud of the Levantine Ceramics Project, an open-access resource I founded in 2011. Since then, it has become the world's largest repository for archaeological ceramics.

Dura-Europos, Syria

ADVOCATE

During its 126th Annual Meeting, the AIA honored the International Digital Dura-Europos Archive (IDEA) with the 2025 Award for Outstanding Work in Digital Archaeology. Members of IDEA are creating the first globally accessible, multilingual, interinstitutional register of content related to Dura-Europos, a well-preserved multi-period site dating to 300 B.C. in what is now Syria. The database features archival content and 25,000 excavation records in English and Arabic. IDEA collaborates with communities and heritage professionals in Syria and elsewhere to set benchmarks for equitable and innovative heritage management practices in archaeology and digital humanities and to overcome barriers, including displacement and language gaps.

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The AIA's commitment to excavation, education, and advocacy is made possible by generous donors like you. Support our mission by making a gift online at archaeological.org/donate.

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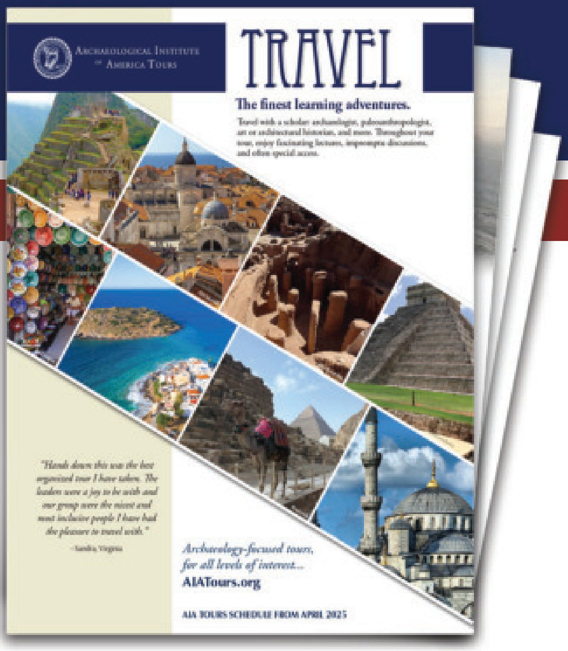
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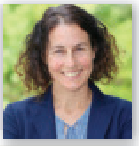
June 20 - July 2, 2025 (13 days | 16 guests)
with archaeologist Elizabeth (Beth) M. Greene

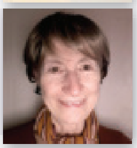


Ireland's Wild Atlantic Way & Northern Ireland
September 1-14, 2025 (14 days | 12 guests)
with geoarchaeologist Stephen Mandal

Northern Italy: Archaeology, Culture & Cuisine
September 10-21, 2025 (12 days | 16 guests)
with archaeologist Patrick Hunt

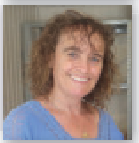
Prehistoric Cave Art of Spain & France
September 17-29, 2025 (13 days | 20 guests)
with prehistory expert Paul G. Bahn

Croatia & Slovenia:
Ancient Treasures along the Dalmatian Coast
September 20-30, 2025 (11 days | 15 guests)
with archaeologist Ivančica (Vanča) Schrunk

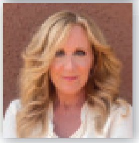


France: The Reach of the Romans
September 21-30, 2025 (10 days | 12 guests)
with archaeologist Patrick Hunt

Crete & the Cycladic Islands:
Archaeological Gems of the Aegean
September 28 - October 12, 2025 (15 days | 16 guests)
with archaeologist Joanne Murphy

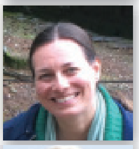


Life, Luxury & Leisure in Ancient Rome
October 5-16, 2025 (12 days | 16 guests)
with archaeologist Crispin (Cris) Corrado



Peru: Ancient Cultures of the Coast & Andes
October 6-21, 2025 (16 days | 15 guests)
with cultural anthropologist/archaeologist
Gabriela Cervantes-Quequezana

Japan: Ancient & Medieval Treasures & Temples
October 17-29, 2025 (13 days | 16 guests)
with archaeologist Ilona Bausch



Southern Peru: Nazca Lines, Colca Canyon & Lake Titicaca
October 24 - November 7, 2025 (15 days | 15 guests)
with cultural anthropologist/archaeologist
Gabriela Cervantes-Quequezana

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ARTIFACT BY JARRETT A. LOBELL

It is tempting to think that the ancient Egyptians only considered the gods when their thoughts turned toward death. Many of the most spectacular objects they created, the hieroglyph-covered walls they painted, and the ways in which they preserved the bodies of the deceased were intended to ensure that the gods would grant the dead an easy passage to the afterlife and that they would have all they needed there. But the popular dwarf god Bes was a different type of deity. Among his many functions, he was a protector of homes, mothers, children, childbirth, life, and joy. From the New Kingdom (ca. 1550–1070 B.C.) through the Ptolemaic and Roman periods—a span of more than 2,000 years—ceramic vessels in the shape of Bes' head circulated throughout Egypt. Now, for the first time, archaeologists have pinpointed what was inside at least one of these pots, and it proves to have been an intoxicating brew. "When we analyzed the mug's contents, we were able to identify all the chemical signatures of the diverse components of a liquid concoction that was used for an otherwise unknown ritual practice," says archaeological scientist Davide Tanasi of the University of South Florida.

Tanasi detected a number of plants with psychotropic and medicinal properties, including wild Syrian rue, blue water lily, and African spider plant. He also discovered that the mug contained bodily fluids such as breast milk, as well as a mixture of beer, wine, honey, sesame seeds, pine nuts, and licorice. "I thought there was just going to be residue of beer or milk, so I was very surprised by the complexity of the vessel's contents," Tanasi says. "But if you can imagine a civilization that is capable of doing this kind of magical religious stuff, it's the ancient Egyptians."

WHAT IS IT
Bes cup

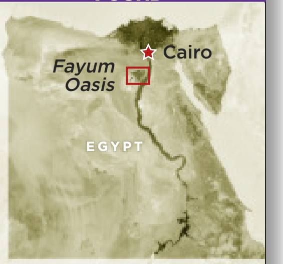
MATERIAL
Ceramic

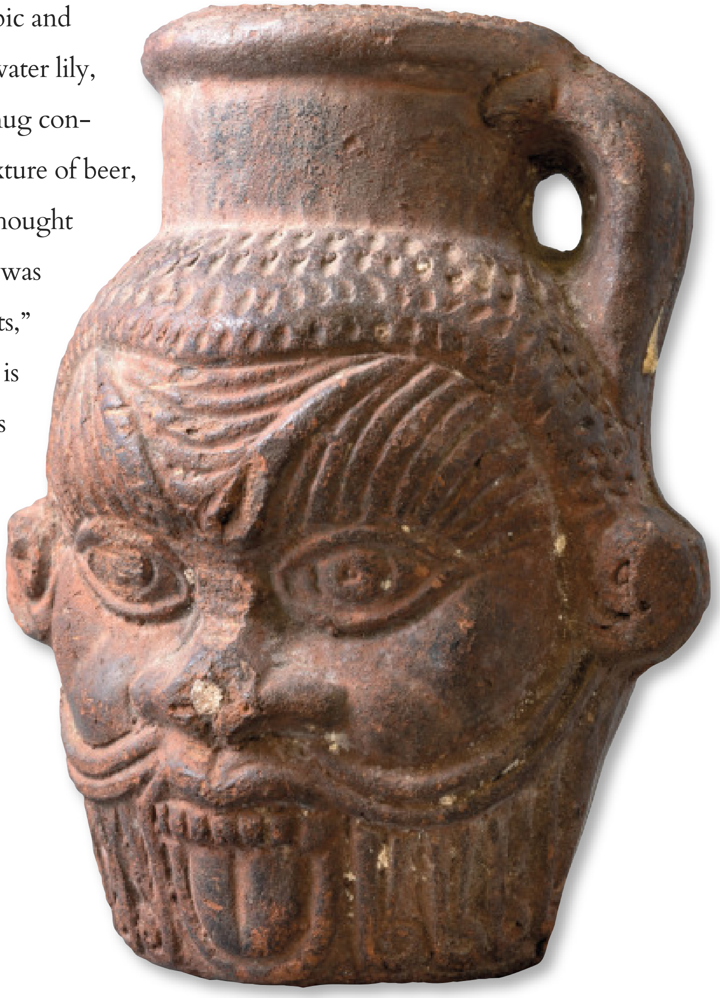
CULTURE
Egyptian

DATE
Second century B.C.

DIMENSIONS
1.5 inches tall

FOUND





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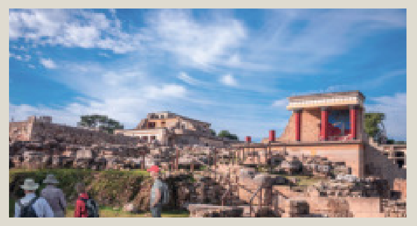
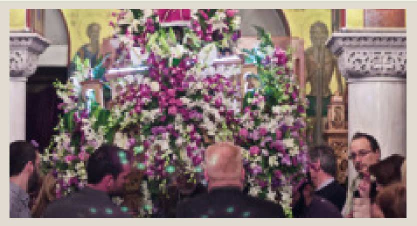
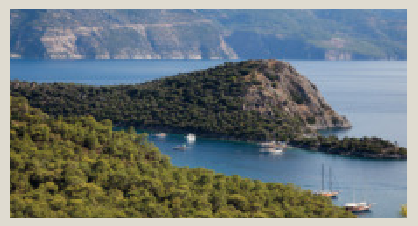


EXPLORING CRETE

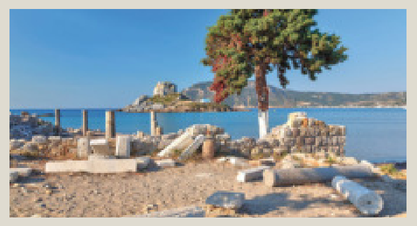


EASTER IN ATHENS



CRUISING THE LYCIAN SHORE

EXPLORING THE PELOPONNESE



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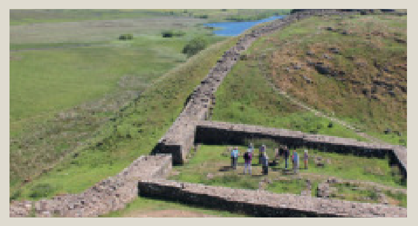

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